Sugar Bulletin, No. 20.

DEPARTMENT OF AGRICULTURE,
BRITISH GUIANA.

FIELD EXPERIMENTS WITH SUGAR CANE, XX.

THE VARIETY AND FERTILIZER POSITION OF THE SUGAR INDUSTRY, XVII.

REPORT ON THE SUGAR EXPERIMENT STATIONS FOR THE YEAR 1951.

'LEAF SCALD' INVESTIGATION.

INSECT PESTS OF SUGAR CANE.

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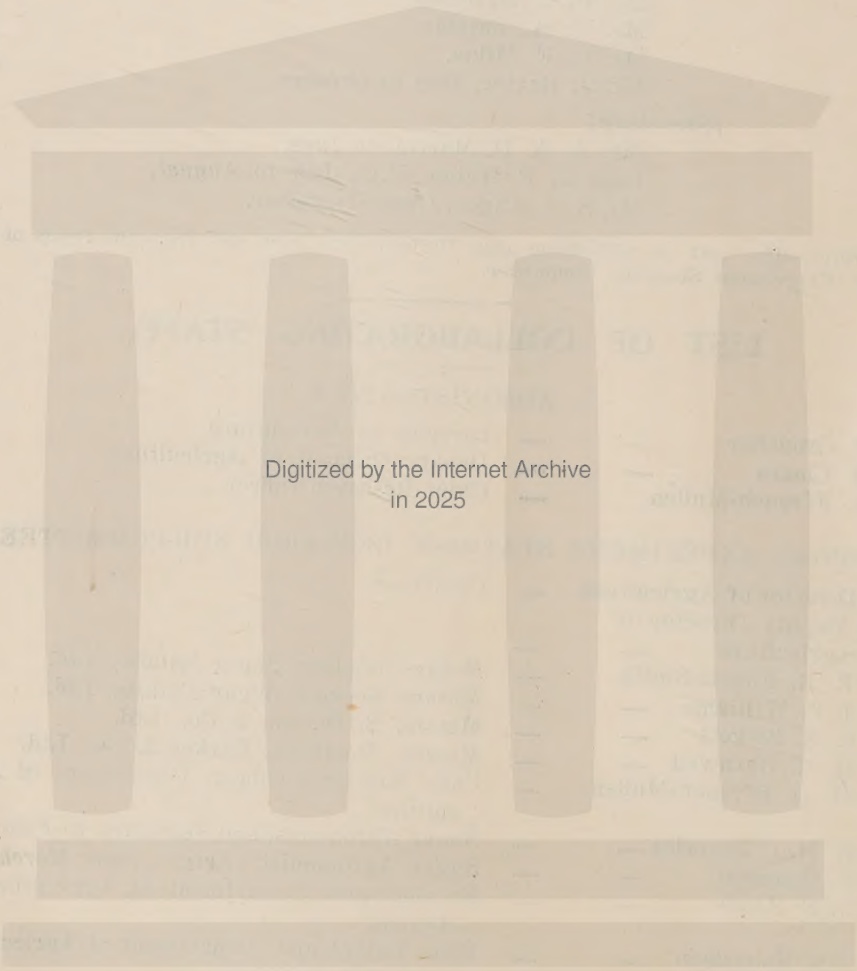

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FIELD EXPERIMENTS WITH SUGAR CANE, XX.

BY

W. H. C. KNOWLES, *Sugar Agronomist, (to February)*

AND

C. CAMERON, *Sugar Agronomist (Actg.) from March.*

INTRODUCTION.

This paper summarises the results of 64 Field Experiments carried out during 1951. They consist of the following :—

Variety	....	53
Manurial	....	9
Irrigation	....	2

The weather during 1951 was again somewhat abnormal. The total rainfall for this year, as recorded at the Sugar Experiment Station was 140.28 inches as against 125.87 inches in 1950 and an average of 100.20 inches over the last thirty years.

Comparatively heavy rains were experienced in January to July and moderately heavy in August to October.

On the other hand, November was unusually dry with only 0.62 inches as against 7.81 inches last year and the average of 5.70 inches over the last thirty years.

During the latter part of December 7.75 inches were recorded but while this amount is greater than that of December last year, it was only just over half of the thirty-year average.

With the exception of five days in January on which a total of over 15 inches fell and two days in May of nearly 11 inches which caused some damage on the Demerara East Coast Frontlands, the general distribution of rainfall may be considered to have contributed to the year's increased yields.

TABLE I.—**Comparison of January—December Rainfall at Sophia Sugar Experiment Station for 1951 with the Average for 1921—1951.**

Month.	Actual Rainfall, 1951. Inches.	Average Rainfall, 1921—1951. Inches.	Excess or Deficit, Inches.
January 1951	26.76	10.22	16.54
February „	11.60	4.95	6.65
March „	6.12	4.68	1.44
April „	11.24	6.50	4.74
May „	21.94	12.74	9.20
June „	22.47	14.92	7.55
July „	12.40	11.85	.55
August „	5.63	7.55	–1.92
September „	7.85	2.91	4.94
October „	5.90	3.96	1.94
November „	.62	5.70	–5.08
December „	7.75	14.22	–6.47
Total	140.28	100.20	40.08

VARIETY TRIALS.

The results of the 1951 series of variety trials are presented and discussed under the following sub-heads, *viz* :—

(a) Variety Sorting trials ;
(b) Plant cane variety trials ;
(c) First ratoon variety trials ;
(d) Second ratoon variety trials ;
(e) Variety Performance Summary;
(f) General Summary and Recommendations.

SUB-SECTION A.—VARIETY SORTING TRIALS.

Three Variety Sorting Trials were reaped as plants in 1951 and consist mainly of the Barbados 1945 and 1946 series. One was planted at Pln. Tuschen on Pegassy Clay and two at the Sugar Experiment Station on Frontland Clay.

The Sorting Trials of the Barbados 1944 series were also reaped as ratoons; one at 15 W. Sophia as second ratoon and one at 71 De Kinderen as first ratoon. It is unfortunate, however, that the trial in 15 W. Sophia was so badly destroyed by trespassers that the results of that crop are not considered reliable for recording.

The more promising varieties indicated by the other crops of both trials were included in large-scale field trials. Trials of this series reaped during the year were six as plants, three as first ratoons and one as second ratoon.

The results of the three series *e.g.* 1944, 1945 and 1946 are tabulated below.

TABLE II.—**Results of a First Ratoon "Variety Sorting" Trial on Pegassy Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre,		Combined results for 2 Crops, Plants and 1st Ratoons.	
					Tons.	% Mean.	Variety.	Sucrose in Cane per Acre. Tons.
	Pln. DeKinderen, Field 71 DeK. Reaped 16. iii. 51 at 12.50 months. Rainfall :—93.49 inches.							
MEANS OF 4 PLOTS:	B. 44244	27.28	13.38	87.2	3.65	137.22	B. 44244	8.80
	B. 4466	26.72	13.45	87.3	3.59	134.96	B. 4466	8.23
	B. 4448	22.27	13.07	82.0	2.91	109.40	B. 44182	7.15
	D. 62/43	24.93	11.50	79.4	2.87	107.89	D. 62/43	6.89
	D. 14/34	20.94	13.14	83.9	2.75	103.38	B. 34104	6.74
	B. 44182	19.28	14.18	88.4	2.73	102.63	D. 14/34	6.56
	*B. 34104	21.49	11.99	83.7	2.58	96.99	B. 4448	6.45
	B. 44111	16.20	12.77	83.5	2.07	77.82	B. 44111	5.02
	B. 44341	6.74	12.38	87.1	0.83	31.20	B. 44341	2.43
	Mean :				2.66	100.00		
	Significant Difference, 20 : 1 :				.85	31.95		

* **Standard Cane.**

TABLE II. (Contd.).—**Results of Plant Cane "Variety Sorting" Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
	Sophia, Field 13 E. "B." Reaped 19. vii. 51 at 14.00 months. Rainfall :—171.57 inches.					
MEANS OF 4 PLOTS :	B. 4699	56.39	14.26	88.3	8.04	121.45
	*B. 41227	57.39	13.72	88.3	7.87	118.88
	B. 46351	57.43	13.55	84.3	7.78	117.52
	B. 46290	57.78	13.40	87.0	7.74	116.92
	B. 46144	56.71	13.45	86.7	7.63	115.26
	B. 4596	52.89	14.30	88.6	7.56	114.20
	B. 46384	52.00	14.38	87.7	7.48	112.99
	B. 46230	51.02	14.35	90.4	7.32	110.57
	B. 4688	58.23	11.96	83.7	6.96	105.14
	B. 46399	58.65	11.82	86.6	6.93	104.68
	B. 4506	52.52	13.07	85.0	6.86	103.63
	B. 46369	54.98	12.43	87.6	6.83	103.17
	B. 46394	50.31	13.45	87.3	6.77	102.27
	B. 4604	55.54	12.06	85.9	6.70	101.21
	B. 46218	43.71	15.22	84.7	6.65	100.45
	B. 46288	54.64	12.10	84.8	6.61	99.85
	B. 46102	52.35	12.56	88.9	6.57	99.24
	B. 4534	54.18	12.06	84.6	6.53	98.64
	B. 46293	48.70	13.16	87.5	6.41	96.83
	B. 46297	46.27	12.58	90.3	5.82	87.92
	B. 46232	43.64	12.87	90.5	5.62	84.89
	B. 4681	40.11	12.72	87.2	5.10	77.04
	B. 45152	46.73	10.85	80.1	5.07	76.59
	B. 4502	31.40	13.96	86.9	4.38	66.16
	B. 4692	37.93	11.48	82.3	4.35	65.71
	Mean :				6.62	100.00
	Significant Difference, 20 : 1 :				1.30	19.64
	Sophia, Field 13 E. "A." Reaped 25. vii. 51 at 14.25 months. Rainfall :—174.49 inches.					
MEANS OF 4 PLOTS :	B. 46378	65.09	15.22	86.7	9.91	130.39
	B. 46340	62.75	15.73	91.1	9.87	129.87
	B. 45151	60.05	14.33	85.9	8.61	113.29
	B. 45270	62.70	13.52	88.6	8.48	111.58
	B. 46103	66.29	12.22	87.5	8.10	106.58
	B. 4553	53.80	14.95	86.3	8.04	105.79
	B. 4691	61.34	13.01	82.3	7.98	105.00
	B. 4608	64.76	12.29	79.7	7.96	104.74
	B. 44244	60.73	12.83	85.6	7.79	102.50
	B. 46281	59.51	13.05	82.1	7.77	102.24
	M. 423/41	54.25	14.29	88.7	7.75	101.97
	B. 46248	50.73	15.14	88.7	7.68	101.05
	M. 213/40	67.01	11.24	82.0	7.53	99.08
	B. 4572	50.70	14.78	93.0	7.49	98.55
	B. 45188	57.16	13.04	79.8	7.45	98.03
	B. 45274	61.24	12.13	82.0	7.43	97.76
	M. 134/32	49.09	15.03	89.0	7.38	97.11
	*B. 41227	55.91	12.79	86.4	7.15	94.08
	B. 4408	56.10	12.72	86.3	7.13	93.82
	B. 46136	58.78	11.97	87.9	7.04	92.63
	B. 4668	50.32	13.02	81.8	6.55	86.18
	B. 4504	48.27	13.18	82.8	6.36	83.68
	B. 46190	48.34	12.98	87.4	6.27	82.50
	B. 46151	46.50	13.43	86.6	6.24	82.11
	B. 4556	46.16	12.85	86.8	5.93	78.03
	Mean :				7.60	100.00
	Significant Difference, 20 : 1 :				1.21	15.92

* **Standard Cane.**

TABLE II. (Contd.).—**Results of a Plant Cane "Variety Sorting" Trial on Pegassy Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre,	
					Tons.	% Mean.
	Plm. De Kinderen, Field 13W.Tuschen, Reaped 28.viii.51 at 14.50 months. Rainfall :—156.20 inches.					
	B. 46369	50.29	14.52	90.7	7.30	142.58
	B. 45151	37.89	16.59	93.3	6.28	122.66
	B. 46351	46.51	13.22	85.5	6.15	120.12
	B. 46378	42.98	13.98	88.5	6.01	117.38
	B. 4699	37.60	15.35	89.6	5.77	112.70
	B. 46102	42.35	13.39	82.1	5.67	110.74
	B. 4668	41.11	13.30	87.9	5.47	106.84
	B. 46151	33.61	16.06	91.5	5.40	105.47
	B. 46290	44.06	12.12	83.1	5.34	104.30
	B. 46394	36.60	14.57	92.1	5.33	104.10
	B. 46297	35.05	14.95	88.7	5.24	102.34
	*B. 41227	39.95	13.08	87.1	5.22	101.95
	B. 4691	33.83	15.40	87.2	5.21	101.76
MEANS OF 4 PLOTS :	B. 46340	34.18	15.12	91.8	5.17	100.98
	B. 46136	36.35	14.18	87.1	5.15	100.59
	B. 46281	35.02	14.10	89.9	4.94	96.48
	B. 46399	35.83	13.17	89.8	4.72	92.19
	B. 4604	36.06	12.92	92.6	4.66	91.02
	B. 4572	30.96	14.71	89.6	4.55	88.87
	B. 46232	33.10	13.76	88.7	4.55	88.87
	B. 4688	37.37	10.80	76.9	4.03	78.71
	B. 4504	31.75	12.68	80.2	4.02	78.52
	B. 4534	28.07	12.56	82.3	3.53	68.95
	B. 4608	29.64	10.51	73.4	3.15	61.52
	Mean :				5.12	100.00
	Significant Difference, 20 : 1 :				.85	16.60

* **Standard Cane.**

SUB-SECTION B.—PLANT CANE VARIETY TRIALS.

Eight variety trials were reaped at the plant-cane stage during 1951. They are classified according to soil type and locality as follows :—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	1—5	5
Berbice Frontland Clay	6—7	2
Pegassy Clay	8	1

TABLE III.—**Results of Plant Cane Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre. Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Trial No.
	Sophia, Field 9 W. "B." Reaped 9.viii.51 at 14.75 months. Rainfall :—179.35 inches.						
MEANS OF 4 PLOTS:	D. 62/43	55.98	15.42	88.1	8.63	123.29	1
	D. 54/43	56.73	13.18	88.0	7.48	106.86	
	D. 37/45	55.24	13.27	87.3	7.33	104.71	
	D. 27/45	51.19	14.11	88.8	7.22	103.14	
	*B. 41227	49.69	13.42	86.6	6.67	95.29	
	D. 27/44	51.09	13.05	86.2	6.67	95.29	
	D. 9/46	44.23	13.83	89.8	6.12	87.43	
	D. 18/45	43.41	13.50	87.8	5.86	83.71	
	Mean:				7.00	100.00	
	Significant Difference, 20: 1:				1.24	17.71	
	Sophia, Field 9 W. "A." Reaped 13.viii.51 at 15.00 months. Rainfall :—182.84 inches.						
MEANS OF 4 PLOTS:	D. 62/43	51.57	15.14	88.6	7.81	116.39	2
	D. 4/43	49.99	15.25	89.8	7.62	113.56	
	*B. 41227	45.78	14.29	88.8	6.54	97.47	
	D. 14/46	46.06	13.70	89.6	6.31	94.04	
	B. 43413	43.73	14.05	86.7	6.14	91.51	
	B. 4214	43.06	13.60	87.7	5.86	87.33	
	Mean:				6.71	100.00	
	Significant Difference, 20: 1:				1.42	21.16	
	Pln. L.B.I., Field 51 W. Success. Reaped 4.ix.51 at 12.50 months. Rainfall :—100.72 inches.						
MEANS OF 5 PLOTS:	D. 158/41	62.93	13.98	87.6	8.80	125.36	3
	B. 44111	51.29	13.38	89.0	6.86	97.72	
	B. 40105	51.62	13.21	88.9	6.82	97.15	
	B. 43253	42.68	15.71	91.0	6.70	95.44	
	*B. 41227	51.39	13.03	87.9	6.70	95.44	
	D. 4/43	50.40	12.43	86.7	6.27	89.32	
	Mean:				7.02	100.00	
	Significant Difference, 20: 1:				1.00	14.24	
	Sophia, Field 5 E. "A." Reaped 9.xi.51 at 13.00 months. Rainfall :—149.55 inches.						
MEANS OF 4 PLOTS:	D. 37/45	63.11	15.62	83.7	9.86	122.48	4
	D. 49/46	58.84	14.56	87.4	8.57	106.46	
	*B. 41227	55.89	14.98	86.2	8.37	103.98	
	B. 43349	61.90	13.52	85.6	8.37	103.98	
	D. 100/46	51.66	15.50	89.6	8.01	99.50	
	D. 121/46	48.40	16.06	91.2	7.77	96.52	
	D. 91/46	50.49	15.07	89.2	7.61	94.53	
	D. 96/46	46.47	15.06	88.2	7.00	86.96	
	B. 44182	49.19	14.06	87.2	6.91	85.84	
	Mean:				8.05	100.00	
	Significant Difference, 20: 1:				1.69	20.99	

* **Standard Cane.**

TABLE III. (Contd.).—**Results of Plant Cane Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Trial No.
	Sophia, Field 5 E. "B." Reaped 9.xi.51 at 13.00 months. Rainfall :—149.55 inches.						
MEANS OF 4 PLOTS:	D. 149/41	57.69	15.01	87.2	8.66	115.62	5
	D. 183/46	53.19	15.60	91.0	8.30	110.81	
	D. 37/45	57.44	14.22	87.3	8.17	109.08	
	D. 150/46	55.24	14.46	87.1	7.98	106.54	
	D. 275/46	50.75	15.20	83.9	7.71	102.94	
	*B. 41227	55.05	14.00	87.8	7.71	102.94	
	D. 175/46	48.38	13.40	88.5	6.48	86.52	
	D. 277/46	46.11	13.96	86.6	6.43	85.85	
	D. 261/46	47.74	12.47	83.7	5.95	79.44	
	Mean:				7.49	100.00	
	Significant Difference, 20: 1:				1.52	20.29	
	Results of Plant Cane Variety Trials on Berbice Frontland Clay.						
	Pln. Port Mourant, Field 34 R.E. Reaped 11.iv.51 at 15.50 months. Rainfall :—65.32 inches.						
MEANS OF 5 PLOTS:	*B. 41227	55.76	15.33	90.2	8.55	117.93	6
	B. 4448	48.00	15.98	86.9	7.67	105.79	
	B. 44111	53.35	14.12	87.4	7.53	103.86	
	*B. 34104	46.01	15.76	90.5	7.25	100.00	
	B. 43253	41.09	17.02	90.1	6.99	96.41	
	B. 44244	52.70	13.07	88.9	6.89	95.03	
	B. 44341	44.71	15.01	87.5	6.71	92.55	
	B. 44165	40.62	15.74	88.1	6.39	88.14	
	Mean:				7.25	100.00	
	Significant Difference, 20: 1:				1.10	15.17	
	Pln. Albion, Field 47 A. Reaped 6.xi.51 at 15.00 months. Rainfall :—107.43 inches.						
MEANS OF 5 PLOTS:	B. 43413	53.12	14.85	84.2	7.89	125.04	7
	D. 54/43	54.51	12.75	82.2	6.95	110.14	
	B. 4373	45.25	14.77	82.5	6.68	105.86	
	D. 62/43	48.54	13.29	86.8	6.45	102.22	
	B. 4214	49.13	12.18	85.4	5.99	94.93	
	B. 44279	44.12	13.01	88.0	5.74	90.97	
	*B. 34104	42.63	13.14	90.0	5.60	88.75	
	*B. 41227	43.16	11.92	81.4	5.15	81.62	
	Mean:				6.31	100.00	
	Significant Difference, 20: 1:				.93	14.74	
	Results of a Plant Cane Variety Trial on Pegassy Clay.						
	Pln. Wales, Field 7 S. Reaped 19.xi.51 at 12.75 months. Rainfall :—98.41 inches.						
MEANS OF 5 PLOTS:	D. 62/43	33.13	13.34	84.8	4.42	113.92	8
	B. 43263	29.82	14.28	89.3	4.26	109.79	
	*B. 41227	30.23	13.31	87.3	4.02	103.61	
	B. 4373	28.38	13.97	90.3	3.97	102.32	
	*B. 34104	26.44	14.06	85.4	3.72	95.88	
	B. 4466	25.89	14.09	88.5	3.65	94.07	
	B. 44244	25.65	12.08	87.9	3.10	79.90	
	Mean:				3.88	100.00	
	Significant Difference, 20: 1:						

* **Standard Cane.**

SUB-SECTION C.—FIRST RATOON VARIETY TRIALS.

Twenty-three* variety trials at the first ratoon stage were reaped. They have been classified as follows :—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	9—25	17
Berbice Frontland Clay	26	1
Riverside Clay	27—29	3
Pegassy Clay	30—31	2

*One trial omitted from Publication in 1950—Bulletin 19.

TABLE IV.—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons, Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons, Sucrose in Cane per Acre, Tons.	Trial No.
	Sophia, Field 14 E. Reaped 19.iii.51 at 12.25 months. Rainfall :—123.53 inches.								
MEANS OF 4 PLOTS :	D. 127/45	39.89	14.48	86.4	5.78	119.42	D. 159/45	11.96	9
	D. 159/45	41.21	13.76	89.2	5.67	117.15	D. 165/45	10.96	
	*B. 34104	38.00	14.18	90.6	5.39	111.36	D. 127/45	10.64	
	D. 143/45	37.13	13.85	91.5	5.14	106.20	D. 168/45	10.60	
	D. 160/45	37.12	13.41	83.2	4.98	102.89	B. 34104	10.47	
	D. 165/45	37.46	12.63	88.6	4.73	97.73	D. 160/45	10.30	
	D. 168/45	31.81	14.64	89.4	4.65	96.07	D. 74/45	9.96	
	D. 150/45	31.58	14.07	88.2	4.44	91.74	D. 150/45	9.55	
	D. 74/45	30.18	14.51	87.6	4.38	90.50	D. 162/45	8.97	
	D. 172/45	28.55	14.87	91.5	4.25	87.81	D. 172/45	8.66	
	D. 162/45	29.72	12.88	84.8	3.83	79.13	D. 143/45	8.57	
	Mean :				4.84	100.00			
	Significant Difference, 20 : 1 :				—	—			
	Sophia, Field 9 E. Reaped 29.iii.51 at 12.50 months. Rainfall :—123.67 inches.								
MEANS OF 4 PLOTS :	D. 8/45	38.46	17.30	89.5	6.65	127.15	D. 37/45	14.20	10
	D. 37/45	43.44	15.00	88.1	6.52	124.67	D. 27/45	13.04	
	D. 87/45	38.00	16.94	88.8	6.43	122.94	D. 8/45	12.99	
	D. 27/45	37.42	16.45	88.2	6.15	117.59	D. 62/45	12.85	
	D. 62/45	38.36	16.03	89.0	6.15	117.59	D. 87/45	12.59	
	D. 17/45	36.45	16.20	89.3	5.90	112.81	D. 60/45	12.07	
	D. 60/45	38.40	15.37	86.2	5.90	112.81	D. 3/44	11.97	
	*B. 34104	40.14	13.41	87.6	5.38	102.87	D. 17/45	11.77	
	D. 65/45	35.69	14.97	87.7	5.34	102.10	D. 56/15	11.42	
	D. 48/45	32.82	16.12	89.4	5.29	101.15	B. 34104	11.30	
	D. 56/45	29.37	16.84	89.7	4.94	94.45	D. 65/45	11.14	
	D. 3/44	34.34	14.15	87.7	4.86	92.93	D. 55/45	11.13	
	D. 55/45	26.42	18.36	90.3	4.85	92.73	D. 48/45	11.09	
	D. 11/45	31.15	15.22	88.0	4.74	90.63	D. 11/45	10.67	
	D. 64/45	30.42	14.86	85.2	4.52	86.42	D. 41/45	10.50	
	D. 41/45	28.17	16.03	89.9	4.51	86.23	D. 64/45	9.53	
	D. 1/45	25.85	15.89	91.9	4.11	78.58	D. 1/45	9.38	
	D. 26/45	26.93	13.76	87.6	3.70	70.75	D. 54/45	9.03	
	D. 54/45	26.79	13.02	84.8	3.49	66.73	D. 26/45	8.23	
	Mean :				5.23	100.00			
	Significant Difference, 20 : 1 :				.96	18.36			

*** Standard Cane.**

TABLE IV. (Contd.).—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Pln. De Kinderen, Field 51 Z.E. Reaped 6.iv.51 at 12.75 months. Rainfall :—96.32 inches.								
MEANS OF 5 PLOTS:	B. 40105	31.46	15.22	90.3	4.79	130.52	B. 40105	10.92	11
	B. 37172	24.61	16.20	90.3	3.99	108.72	B. 37172	8.26	
	*B. 34104	24.71	14.65	90.8	3.62	98.64	B. 34104	7.30	
	M. 341	16.18	14.16	88.7	2.29	62.40	M. 341	5.57	
	Mean:				3.67	100.00			
	Significant Difference, 20: 1:				.86	23.43			
	Sophia, Field 14 W. Reaped 17.iv.51 at 13.25 months. Rainfall :—128.21 inches.								
MEANS OF 4 PLOTS:	*B. 34104	41.06	12.77	86.9	5.24	114.41	D. 94/45	11.62	12
	D. 124/45	39.16	13.02	85.1	5.10	111.35	D. 30/45	11.49	
	D. 119/45	37.93	13.39	85.4	5.08	110.92	B. 34104	11.19	
	D. 133/45	35.02	14.27	89.1	4.99	108.95	D. 133/45	11.08	
	D. 121/45	35.75	13.31	87.5	4.76	103.93	D. 121/45	10.88	
	D. 94/45	31.86	14.89	90.6	4.74	103.49	D. 124/45	10.75	
	D. 131/45	38.99	11.70	84.3	4.56	99.56	D. 119/45	10.75	
	D. 110/45	30.32	14.77	87.9	4.48	97.82	D. 131/45	10.66	
	D. 30/45	30.81	14.13	90.3	4.35	94.98	D. 141/45	10.54	
	D. 141/45	29.34	14.15	87.1	4.15	90.61	D. 110/45	10.49	
	D. 32/45	30.98	13.09	86.1	4.06	88.65	D. 118/45	10.09	
	D. 118/45	31.74	12.79	85.1	4.06	88.65	D. 32/45	9.57	
	D. 98/45	29.47	13.61	87.8	4.01	87.55	D. 98/45	9.46	
	Mean:				4.58	100.00			
	Significant Difference, 20: 1:				—	—			
	Sophia, Field 11 E. "B." Reaped 8.v.51 at 13.50 months. Rainfall :—148.08 inches.								
MEANS OF 4 PLOTS:	*B. 34104	43.51	13.85	88.8	6.02	125.42	B. 34104	11.50	13
	D. 142/45	44.13	13.51	87.2	5.96	124.17	D. 142/45	10.98	
	B. 4362	31.08	14.81	88.5	4.60	95.83	B. 4362	10.12	
	B. 43253	23.94	16.44	90.6	3.93	81.87	B. 43253	8.28	
	D. 54/43	40.06	8.72	80.0	3.49	72.71	D. 54/43	7.32	
	Mean:				4.80	100.00			
	Significant Difference, 20: 1:				1.05	21.87			
	Sophia, Field 11 E. "A." Reaped 10.v.51 at 13.50 months. Rainfall :—148.68 inches.								
MEANS OF 4 PLOTS:	B. 44165	35.78	16.67	91.9	5.96	121.38	B. 44165	11.06	14
	*B. 34104	39.01	14.74	91.2	5.75	117.11	D. 14/46	10.18	
	D. 14/46	35.82	14.36	91.0	5.14	104.68	B. 34104	10.12	
	D. 9/46	29.73	15.86	91.0	4.71	95.93	D. 2/46	9.62	
	D. 2/46	27.67	16.59	91.2	4.59	93.48	D. 86/45	8.99	
	D. 86/45	29.70	15.08	88.7	4.48	91.24	D. 9/46	8.98	
	D. 8/46	31.14	11.90	83.5	3.71	75.56	D. 8/46	8.15	
	Mean:				4.91	100.00			
	Significant Difference, 20: 1:				.80	16.29			

*** Standard Cane.**

TABLE IV. (Contd.).—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Sophia, Field 6 W. "A." Reaped 30.vii.51 at 15.00 months. Rainfall :—186.12 inches.								
MEANS OF 4 PLOTS:	D. 6/43	41.53	14.05	88.4	5.83	111.90	D. 6/43	13.51	15
	*B. 34104	39.62	14.00	87.4	5.55	106.53	B. 34104	13.34	
	D. 173/45	33.28	12.74	88.8	4.24	81.38	D. 173/45	12.01	
	Mean:				5.21	100.00			
	Significant Difference, 20 : 1 :				.93	17.85			
	Sophia, Field 6 W. "B." Reaped 30.vii.51 at 15.00 months. Rainfall :—186.12 inches.								
MEANS OF 4 PLOTS:	*B. 34104	40.88	14.07	91.6	5.75	123.39	B. 34104	14.02	16
	D. 3/46	32.90	15.18	91.3	4.99	107.08	D. 3/46	11.90	
	D. 29/46	32.69	12.68	82.7	4.14	88.84	D. 29/46	11.37	
	D. 145/45	31.15	12.15	84.5	3.78	81.12	D. 145/45	11.29	
	Mean:				4.66	100.00			
	Significant Difference, 20 : 1 :				.26	5.58			
	Sophia, Field 4 W. "B." Reaped 31.viii.51 at 12.00 months. Rainfall :—135.89 inches.								
MEANS OF 4 PLOTS:	D. 24/46	47.26	15.37	87.2	7.26	115.42	D. 123/45	15.63	17
	D. 123/45	46.99	14.87	89.4	6.99	111.13	D. 29/46	14.84	
	D. 29/46	46.10	15.09	87.2	6.95	110.49	D. 24/46	14.27	
	D. 1/46	40.98	15.07	91.9	6.17	98.09	D. 1/46	13.12	
	*B. 34104	41.36	13.36	91.1	5.52	87.76	B. 34104	11.18	
	D. 20/46	37.73	12.84	88.8	4.84	76.95	D. 20/46	10.14	
	Mean:				6.29	100.00			
	Significant Difference, 20 : 1 :				.60	9.54			
	Sophia, Field 4 W. "A." Reaped 2.ix.51 at 12.00 months. Rainfall :—136.13 inches.								
MEANS OF 4 PLOTS:	D. 37/45	54.01	13.80	88.7	7.45	118.44	D. 37/45	17.31	18
	D. 18/46	45.84	14.05	89.5	6.44	102.38	D. 18/46	14.39	
	D. 17/46	42.91	14.19	89.9	6.09	96.82	D. 17/46	14.02	
	*B. 34104	41.57	14.21	86.4	5.91	93.96	B. 34104	13.71	
	D. 13/46	49.83	11.12	86.1	5.54	88.08	D. 13/46	13.15	
	Mean:				6.29	100.00			
	Significant Difference, 20 : 1 :				.80	12.72			
	Pln. L.B.I., Field 20 L.R. Reaped 12.ix.51 at 11.25 months. Rainfall :—103.94 inches.								
MEANS OF 5 PLOTS:	D. 58/43	52.89	13.89	87.0	7.34	110.88	B. 43214	14.09	19
	B. 43214	51.24	14.31	88.3	7.33	110.72	D. 58/43	13.95	
	D. 54/43	48.37	13.74	88.7	6.65	100.45	D. 54/43	13.58	
	*B. 34104	42.24	12.19	88.8	5.15	77.79	B. 34104	10.23	
	Mean:				6.62	100.00			
	Significant Difference, 20 : 1 :				.71	10.72			

*** Standard Cane.**

TABLE IV. (Contd.).—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.		Trial No.
					Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.	
	Sophia, Field 3 W. "B." Reaped 14.ix.51 at 12.25 months. Rainfall :—143.35 inches.								
MEANS OF 5 PLOTS :	D. 62/43	48.22	14.72	89.9	7.10	105.81	D. 62/43	16.36	20
	D. 54/43	49.35	14.34	87.9	7.08	105.51	D. 54/43	14.21	
	B. 4362	44.19	15.74	92.0	6.96	103.73	B. 4362	13.86	
	*B. 34104	41.19	13.81	90.6	5.69	84.80	B. 34104	12.85	
	Mean:				6.71	100.00			
	Significant Difference, 20 : 1 :				.96	14.31			
	Pln. Ogle, Field 39 S.I. Reaped 18.ix.51 at 12.75 months. Rainfall :—126.73 inches.								
MEANS OF 5 PLOTS :	B. 4362	42.35	14.47	89.6	6.13	110.45	B. 4362	11.97	21
	D. 58/43	46.37	13.13	87.0	6.09	109.73	D. 58/43	11.69	
	D. 62/43	43.36	12.91	85.9	5.60	100.09	D. 62/43	10.48	
	B. 43253	37.29	13.94	94.4	5.20	93.69	B. 43253	10.42	
	*B. 34104	36.91	12.84	86.4	4.74	85.41	B. 34104	8.74	
	Mean:				5.55	100.00			
	Significant Difference, 20 : 1 :				.81	14.59			
	Sophia, Field 3 W. "A." Reaped 18.ix.51 at 12.25 months. Rainfall :—143.42 inches.								
MEANS OF 4 PLOTS :	D. 58/43	53.72	13.34	87.4	7.17	105.91	D. 58/43	13.81	22
	B. 43253	41.41	16.06	93.0	6.65	98.23	B. 34104	13.51	
	*B. 34104	47.50	13.65	93.5	6.48	95.72	B. 43253	12.83	
	Mean:				6.77	100.00			
	Significant Difference, 20 : 1 :				—	—			
	Sophia, Field 1 E. "A." Reaped 1.x.51 at 11.00months. Rainfall :—139.15 inches.								
MEANS OF 4 PLOTS :	D. 37/45	51.37	14.43	88.4	7.41	120.88	D. 37/45	17.27	23
	*B. 34104	46.60	14.25	86.6	6.64	108.32	B. 34104	14.40	
	D. 14/45	47.78	13.73	86.7	6.56	107.01	D. 56/45	13.95	
	D. 56/45	41.96	15.21	89.8	6.38	104.08	D. 14/45	13.91	
	D. 52/45	44.60	13.91	83.9	6.20	101.14	D. 19/45	13.49	
	D. 54/45	44.99	13.15	85.8	5.92	96.57	D. 54/45	13.36	
	D. 19/45	44.79	12.84	82.7	5.75	93.80	D. 11/45	13.09	
	D. 11/45	41.51	12.89	85.0	5.36	87.28	D. 52/45	11.43	
	D. 49/45	36.54	13.58	87.8	4.96	80.91	D. 49/45	10.65	
	Mean:				6.13	100.00			
	Significant Difference, 20 : 1 :				.96	15.66			

* **Standard Cane.**

TABLE IV. (Contd.).—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Sophia, Field 1 E. "B." Reaped 4.x.51 at 11.75 months. Rainfall :—144.26 inches.								
MEANS OF 4 PLOTS:	D. 43/45	44.58	15.74	86.0	7.01	118.21	D. 43/45	14.82	24
	*B. 34104	45.87	14.25	90.8	6.54	110.29	D. 87/45	14.72	
	D. 7/45	40.08	14.97	84.9	6.00	101.18	B. 34104	14.25	
	D. 6/45	45.24	13.25	89.9	6.00	101.18	D. 8/45	14.07	
	D. 87/45	38.97	15.20	86.6	5.92	99.83	D. 18/45	13.69	
	D. 18/45	41.52	14.04	87.0	5.83	98.31	D. 27/45	13.67	
	D. 29/45	44.13	13.20	88.0	5.82	98.14	D. 7/45	13.09	
	D. 27/45	40.32	14.41	91.2	5.81	97.98	D. 23/45	12.99	
	D. 8/45	42.21	13.24	89.1	5.59	94.27	D. 29/45	12.13	
	D. 23/45	32.45	14.82	90.4	4.81	81.11	D. 6/45	11.98	
	Mean:				5.93	100.00			
	Significant Difference, 20 : 1 :				1.02	17.20			
	Pln. Enmore, Field 27 H.E. Reaped 18.xii.51 at 12.25 months. Rainfall :—114.05 inches.								
MEANS OF 5 PLOTS:	B. 4098	46.40	15.39	83.3	7.14	115.35	B. 4448	14.10	25
	B. 4448	43.00	16.03	84.8	6.90	111.47	B. 44341	13.55	
	B. 44341	46.07	14.38	83.3	6.62	106.95	B. 4098	13.09	
	D. 158/41	41.87	15.78	84.0	6.61	106.79	B. 44111	12.31	
	B. 44111	39.21	15.85	86.0	6.22	100.48	D. 158/41	11.97	
	*B. 34104	39.59	14.71	88.8	5.82	94.02	B. 44244	11.81	
	B. 44244	39.64	13.34	84.2	5.29	85.46	B. 34104	11.76	
	B. 44165	32.35	15.27	87.9	4.94	79.81	B. 44165	11.52	
	Mean:				6.19	100.00			
	Significant Difference, 20 : 1 :				.96	15.51			
	Results of a First Ratoon Variety Trial on Berbice Frontland Clay.								
	Pln. Albion, Field 60 A. Reaped 21.xi.51 at 12.75 months. Rainfall :—96.73 inches.								
MEANS OF 5 PLOTS:	D. 158/41	45.05	15.86	88.7	7.14	103.48	D. 158/41	14.15	26
	D. 58/43	49.28	14.18	88.6	6.99	101.30	D. 58/43	12.92	
	B. 4098	44.09	15.63	89.1	6.89	99.85	B. 4098	12.84	
	*B. 34104	44.15	14.87	86.5	6.57	95.22	B. 34104	11.79	
	Mean:				6.90	100.00			
	Significant Difference, 20 : 1 :								

* **Standard Cane.**

TABLE IV. (Contd.).—Results of First Ratoon Variety Trials on Riverside Clay.

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 2 Crops, Plants, and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants, and 1st Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Pln. Peter's Hall, Field 77. Reaped 10.iv.51 at 10.75 months. Rainfall :—104.11 inches.								
MEANS OF 5 PLOTS :	*B. 34104	24.38	14.03	86.5	3.42	105.88	B. 4362	8.54	27
	D. 158/41	23.43	13.62	85.9	3.19	98.76	D. 158/41	8.16	
	B. 4362	19.69	15.72	85.8	3.09	95.67	B. 34104	7.42	
	Mean :				3.23	100.00			
	Significant Difference, 20 : 1 :				—	—			
	Pln. Diamond, Field 55 G.D. Reaped 10.x.51 at 12.50 months. Rainfall :—142.08 inches.								
MEANS OF 5 PLOTS :	B. 4362	47.97	14.84	90.8	7.12	124.91	B. 4362	14.33	28
	B. 43253	37.45	15.11	89.4	5.66	99.30	B. 43253	12.40	
	D. 58/43	45.63	11.90	83.1	5.43	95.26	D. 58/43	12.02	
	*B. 34104	36.93	13.94	92.4	5.15	90.35	D. 54/43	11.33	
	D. 54/43	41.62	12.36	85.5	5.14	90.18	B. 34104	9.01	
	Mean :				5.70	100.00			
	Significant Difference, 20 : 1 :				1.17	20.53			
	† ***Pln. Wales, Field 22 B.V. Reaped 30.x.50 at 11.75 months. Rainfall :—134.44 inches.***								
MEANS OF 5 PLOTS :	*B. 41227	22.99	15.87	84.4	3.65	115.14	D. 62/43	14.21	29
	D. 62/43	24.32	14.64	83.4	3.56	112.30	B. 41227	12.99	
	D. 14/34	21.13	15.33	88.3	3.24	102.21	D. 14/34	11.92	
	*B. 34104	15.32	14.55	84.6	2.23	70.35	B. 34104	9.39	
	Mean :				3.17	100.00			
	Significant Difference, 20 : 1 :				.59	18.61			
	Results of First Ratoon Variety Trials on Pegassy Clay.								
	Pln. Versailles, Field 49 M.T. Reaped 7.xi.51 at 11.50 months. Rainfall :—133.13 inches.								
MEANS OF 5 PLOTS :	B. 4098	60.46	15.18	87.4	9.21	117.18	B. 4098	15.61	30
	*B. 41227	59.00	14.27	87.9	8.42	107.12	B. 41227	14.87	
	*B. 34104	54.34	15.14	90.2	8.22	104.58	B. 34104	14.05	
	B. 44111	48.33	15.77	89.2	7.62	96.95	B. 44341	13.83	
	B. 44244	56.34	13.32	87.1	7.50	95.42	B. 44244	13.53	
	B. 44341	47.12	14.95	87.8	7.04	89.57	B. 44111	13.31	
	B. 44165	54.18	12.88	86.4	6.98	88.80	B. 44165	11.51	
	Mean :				7.86	100.00			
	Significant Difference, 20 : 1 :				1.11	14.12			
	Pln. Wales, Field Patencia "F." Reaped 15.viii.51 at 11.75 months. Rainfall :—182.72 inches.								
MEANS OF 4 PLOTS :	B. 4362	40.03	16.82	91.6	6.73	113.30	B. 4098	16.74	31
	B. 4098	40.12	15.57	90.6	6.25	105.22	B. 4362	14.47	
	B. 37172	37.77	15.87	92.4	5.99	100.84	B. 37172	13.74	
	*B. 34104	35.45	13.56	90.2	4.81	80.98	B. 34104	9.76	
	Mean :				5.94	100.00			
	Significant Difference, 20 : 1 :				—	—			

*** Standard Cane.**

† Omitted in error from Bulletin No. 19, 1950.

SUB-SECTION D.—SECOND RATOON VARIETY TRIALS.

Twenty-two variety trials at the second ratoon stage were reaped. They have been classified as follows :—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	32—44	13
Berbice Frontland Clay	45—46	2
Riverside Clay	47—50	4
Pegassy Clay	51—53	3

TABLE V.—**Results of Second Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Pln. Leonora, Field 48 E. Reaped 28.iii.51 at 11.25 months. Rainfall :—82.85 inches.								
MEANS OF 5 PLOTS :	B. 4098	33.69	16.86	89.8	5.68	106.77	B. 4098	17.53	32
	*B. 41227	34.86	16.15	90.1	5.63	105.83	B. 41227	16.39	
	*B. 34104	28.77	16.16	91.3	4.65	87.41	B. 34104	14.00	
	Mean :				5.32	100.00			
	Significant Difference, 20 : 1 :				.88	16.54			
	Sophia, Field 16 W. Reaped 4.iv.51 at 12.75 months. Rainfall :—127.71 inches.								
MEANS OF 3 PLOTS :	D. 62/43	25.50	15.20	88.8	3.87	140.73	D. 62/43	16.82	33
	D. 54/43	24.93	13.27	85.2	3.31	120.36	D. 158/41	15.13	
	*B. 34104	19.97	14.30	90.5	2.86	104.00	D. 54/43	14.27	
	D. 158/41	18.44	14.99	87.7	2.77	100.73	D. 4/43	13.38	
	D. 4/43	16.77	14.52	87.1	2.43	88.36	B. 34104	12.91	
	D. 145/41	15.28	13.92	87.0	2.13	77.45	D. 145/41	12.00	
	D. 58/43	14.44	13.19	86.8	1.90	69.09	D. 58/43	10.94	
	Mean :				2.75	100.00			
	Significant Difference, 20 : 1 :				.89	32.36			
	Sophia, Field 8 E. "B." Reaped 22.iv.51 at 13.25 months. Rainfall :—130.41 inches.								
MEANS OF 4 PLOTS :	D. 10/44	43.72	13.21	88.2	5.78	114.68	D. 7/44	15.76	34
	D. 7/44	39.75	12.74	85.6	5.06	100.10	D. 10/44	15.72	
	*B. 34104	41.46	12.15	88.8	5.04	100.00	B. 34104	15.37	
	D. 1/44	36.46	13.13	87.3	4.79	95.04	D. 1/44	15.32	
	D. 3/44	34.85	13.02	87.8	4.53	89.88	D. 3/44	14.50	
	Mean :				5.04	100.00			
	Significant Difference, 20 : 1 :				—	—			

* **Standard Cane.**

TABLE V. (Contd.).—**Results of Second Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Sophia, Field 8 E. "A." Reaped 24.iv.51 at 13.25 months. Rainfall :—130.79 inches.								
MEANS OF 4 PLOTS :	*B. 34104	36.61	13.46	87.9	4.93	114.92	B. 34104	16.33	35
	D. 14/44	33.32	13.09	90.7	4.36	101.63	D. 14/44	13.91	
	D. 27/44	25.98	13.75	89.9	3.57	83.22	D. 27/44	13.44	
	Mean :				4.29	100.00			
	Significant Difference, 20 : 1 :				.59	13.75			
	Sophia, Field 2 E. "A." Reaped 3.v.51 at 12.50 months. Rainfall :—135.13 inches.								
MEANS OF 4 PLOTS :	D. 62/43	33.14	14.70	87.2	4.87	102.31	D. 62/43	19.01	36
	*B. 34104	33.67	14.30	89.5	4.81	101.05	B. 34104	17.41	
	D. 4/43	32.12	14.96	87.5	4.80	100.84	B. 41227	17.41	
	*B. 41227	31.29	14.57	88.9	4.56	95.80	D. 4/43	16.80	
	Mean :				4.76	100.00			
	Significant Difference, 20 : 1 :				—	—			
	Sophia, Field 11 W. "B." Reaped 12.v.51 at 12.50 months. Rainfall :—149.55 inches.								
MEANS OF 4 PLOTS :	D. 62/43	34.33	17.10	88.2	5.87	116.01	D. 62/43	18.25	37
	*B. 34104	29.26	14.55	88.7	4.26	84.19	B. 34104	13.42	
	Mean :				5.06	100.00			
	Significant Difference, 20 : 1 :				.85	16.80			
	Sophia, Field 11 W. "A." Reaped 15.v.51 at 12.75 months. Rainfall :—151.23 inches.								
MEANS OF 4 PLOTS :	D. 7/44	34.05	14.69	88.3	5.00	106.38	D. 7/44	15.41	38
	*B. 34104	29.08	16.30	90.6	4.74	100.85	D. 13/44	15.34	
	D. 13/44	29.68	14.65	85.2	4.35	92.55	B. 34104	13.47	
	Mean :				4.70	100.00			
	Significant Difference, 20 : 1 :				—	—			
	Sophia, Field 12 W. "B." Reaped 21.viii.51 at 12.50 months. Rainfall :—142.29 inches.								
MEANS OF 4 PLOTS :	D. 4/43	46.81	15.36	91.9	7.19	117.87	D. 4/43	22.16	39
	*B. 34104	38.73	14.64	92.2	5.67	92.95	D. 35/43	17.98	
	D. 35/43	41.99	12.97	86.2	5.44	89.18	B.34104	16.73	
	Mean :				6.10	100.00			
	Significant Difference, 20 : 1 :				1.07	17.54			

* **Standard Cane.**

TABLE V. (Contd.).—**Results of Second Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Sophia, Field 12 W. "A." Reaped 22.viii.51 at 12.25 months. Rainfall :—140.73 inches.								
MEANS OF 4 PLOTS :	D. 158/41	45.75	14.76	88.5	6.75	114.60	D. 158/41	20.66	40
	B. 43413	43.09	13.94	88.9	6.01	102.04	B. 43413	18.65	
	*B. 34104	36.41	13.52	92.1	4.92	83.53	B. 34104	16.45	
	Mean :				5.89	100.00			
	Significant Difference, 20 : 1 :				1.00	16.98			
	Sophia, Field 8 W. "B." Reaped 27.viii.51 at 11.50 months. Rainfall :—134.65 inches.								
MEANS OF 4 PLOTS :	B. 43349	46.21	13.60	89.8	6.28	110.95	B. 43349	18.25	41
	D. 142/41	38.32	15.30	89.8	5.86	103.53	D. 142/41	17.96	
	B. 4362	34.77	15.81	92.2	5.50	97.17	B. 4362	16.85	
	*B. 34104	38.78	12.88	89.4	4.99	88.16	B. 34104	15.65	
	Mean :				5.66	100.00			
	Significant Difference, 20 : 1 :				—	—			
	Sophia, Field 8 W. "A." Reaped 28.viii.51 at 11.50 months. Rainfall :—134.65 inches.								
MEANS OF 4 PLOTS :	D. 142/41	33.11	13.95	89.5	4.62	105.24	B. 43413	17.40	42
	*B. 34104	32.95	13.83	90.6	4.57	104.10	D. 142/41	15.43	
	B. 43413	31.02	14.34	90.4	4.45	101.37	B. 4214	15.25	
	B. 4214	25.76	15.26	92.8	3.93	89.52	B. 34104	15.00	
	Mean :				4.39	100.00			
	Significant Difference, 20 : 1 :				—	—			
	Sophia, Field 2 W. "B." Reaped 19.ix.51 at 13.00 months. Rainfall :—147.00 inches.								
MEANS OF 4 PLOTS :	D. 62/43	53.18	15.46	89.5	8.22	114.33	D. 62/43	21.21	43
	*B. 34104	45.04	13.67	86.5	6.16	85.67	B. 34104	15.08	
	Mean :				7.19	100.00			
	Significant Difference, 20 : 1 :				1.98	27.54			
	Sophia, Field 15 W. "B." Reaped 5.x.51 at 12.50 months Rainfall :—144.35 inches.								
MEANS OF 3 PLOTS :	*B. 34104	43.05	16.23	88.9	6.99	128.73	B. 34104	18.87	44
	B. 4448	39.77	15.32	87.0	6.09	112.15	B. 4448	18.70	
	B. 44165	36.52	15.37	87.8	5.61	103.31	B. 44165	16.67	
	M. 134/32	23.98	12.65	82.0	3.03	55.80	M. 134/32	11.17	
	Mean :				5.43	100.00			
	Significant Difference, 20 : 1 :				1.87	34.44			

* **Standard Cane.**

TABLE V. (Contd.).—**Results of Second Ratoon Variety Trials on Berbice Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre.		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.		Trial No.
					Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.	
	Pln Albion, Field 3 J. Reaped 7.iii.51 at 11.25 months. Rainfall :—61.32 inches.								
MEANS OF 5 PLOTS:	*B. 41227	35.36	13.81	87.1	4.88	114.82	B. 41227	19.67	45
	B. 40105	33.43	14.56	86.1	4.87	114.59	B. 40105	18.05	
	B. 37172	29.69	13.85	87.6	4.11	96.71	B. 34104	15.56	
	*B. 34104	28.65	14.00	88.2	4.01	94.35	B. 37172	15.19	
	Co. 421	25.18	13.33	83.8	3.36	79.06	Co. 421	14.26	
	Mean:				4.25	100.00			
	Significant Difference, 20: 1:				.69	16.24			
	Pln. Rose Hall, Field 47 T. Reaped 5.ix.51 at 10.50 months. Rainfall :—92.44 inches.								
MEANS OF 5 PLOTS:	B. 4214	50.19	12.76	88.6	6.41	110.71	B. 4214	17.96	46
	*B. 34104	40.19	12.89	86.8	5.18	89.46	B. 34104	16.40	
	Mean:				5.79	100.00			
	Significant Difference, 20: 1:				.98	16.93			
	Results of Second Ratoon Variety Trials on Riverside Clay.								
	Pln. Providence, (Dem.) Field 5R.P. Reaped 30.iii.51 at 11.25 months. Rainfall :—98.86 inches.								
MEANS OF 5 PLOTS:	D. 142/41	31.36	13.80	87.3	4.33	125.14	D. 142/41	17.56	47
	D. 158/41	23.57	13.34	87.2	3.14	90.75	D. 158/41	15.69	
	*B. 34104	20.62	14.06	90.1	2.90	83.81	B. 34104	14.35	
	Mean:				3.46	100.00			
	Significant Difference, 20: 1:				.59	17.05			
	Pln. Wales, Field 22 B.V. Reaped 16.x.51 at 11.50 months. Rainfall :—134.62 inches.								
MEANS OF 5 PLOTS:	*B. 34104	31.92	13.12	87.8	4.19	114.17	D. 62/43	18.04	48
	D. 62/43	27.32	14.01	86.5	3.83	104.36	B. 41227	16.71	
	*B. 41227	25.83	14.41	88.6	3.72	101.36	D. 14/34	14.85	
	D. 14/34	18.72	15.65	88.9	2.93	79.84	B. 34104	13.58	
	Mean:				3.67	100.00			
	Significant Difference, 20: 1:				.68	18.53			
	Pln. Blairmont, Field 21 Rp. Reaped 20.xi.51 at 11.00 months. Rainfall :—103.57 inches.								
MEANS OF 5 PLOTS:	D. 158/41	41.87	14.27	83.7	5.98	110.74	B. 41227	19.97	49
	*B. 34104	42.46	13.29	86.8	5.64	104.44	D. 158/41	19.51	
	*B. 41227	40.09	13.69	85.9	5.49	101.67	B. 34104	19.41	
	B. 4362	34.23	14.99	87.3	5.13	95.00	B. 4362	17.88	
	B. 4098	35.71	13.31	87.4	4.75	87.96	B. 4098	17.17	
	Mean:				5.40	100.00			
	Significant Difference, 20: 1:				.81	15.00			

* **Standard Cane.**

TABLE V. (Contd.).—Results of Second Ratoon Variety Trials on Riverside Clay.

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
Pln. Blairmont, Field 24 R. Reaped 5.x.51 at 11.75 months. Rainfall :—84.49 inches.									
MEANS OF 5 PLOTS:	D. 62/43	44.71	16.28	96.8	7.28	123.18	D. 62/43	20.31	50
	*B. 34104	39.17	15.03	91.3	5.88	99.49	D. 142/41	19.31	
	B. 4098	41.20	14.02	88.2	5.78	97.80	B. 34104	17.89	
	D. 142/41	39.15	14.71	90.3	5.76	97.46	B. 4098	17.64	
	Co. 421	40.36	12.01	80.7	4.85	82.06	Co. 421	17.54	
	Mean:				5.91	100.00			
	Significant Difference, 20 : 1:				.87	14.72			

Results of Second Ratoon Variety Trials on Pegassy Clay.

Pln. Diamond, Field 109/50 G.D. Reaped 25.iv.51 at 10.75 months. Rainfall :—108.84 inches.

MEANS OF 5 PLOTS:	*B. 41227	36.46	13.62	88.1	4.97	107.34	B. 41227	19.51	51
	B. 40105	32.41	14.00	87.4	4.54	98.06	B. 40105	17.11	
	*B. 34104	32.08	13.69	90.2	4.39	94.82	B. 34104	13.49	
	Mean:				4.63	100.00			
	Significant Difference, 20 : 1:				—	—			

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for † 2 Crops, Plants and 2nd Ratoons. Variety.	Combined Results for † 2 Crops, Plants and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
Pln. De Kinderen, Field 70 E. Tuschen. Reaped 29.viii.51 at 9.50 months. Rainfall :—119.41 inches.									
MEANS OF 4 PLOTS:	*B. 41227	29.63	14.27	89.3	4.23	134.29	B. 41227	10.55	52
	D. 142/41	26.52	10.42	85.9	2.76	87.62	D. 142/41	8.30	
	B. 4098	17.94	13.65	88.4	2.45	77.78	B. 4098	7.99	
	Mean:				3.15	100.00			
	Significant Difference, 20 : 1:				.90	28.57			

† No figures for 1st Ratoons; reaped by Estate.

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.

Results of a Second Ratoon Variety Trial on Pegassy Clay.

Pln. Cornelia Ida, Field 78 A.C. Reaped 6.xii.51 at 12.25 months. Rainfall :—111.35 inches.

MEANS OF 5 PLOTS:	*B. 34104	38.67	14.80	89.3	5.72	128.25	B. 41227	19.88	53
	*B. 41227	37.77	14.29	87.4	5.40	121.08	B. 34104	18.48	
	B. 37172	30.36	14.55	90.5	4.42	99.10	B. 37172	17.36	
	B. 40105	30.12	13.99	86.6	4.21	94.39	B. 40105	14.54	
	B. 4098	16.97	15.08	83.0	2.56	57.40	B. 4098	12.11	
	Mean:				4.46	100.00			
	Significant Difference, 20 : 1:				.54	12.11			

*** Standard Cane.**

SUB-SECTION E.—VARIETY PERFORMANCE SUMMARY.

Varieties in experiments during 1951 are discussed under the following categories :—

(a) Standard Canes ;

(b) Barbados Seedlings produced prior to the B.40' series ;

(c) Barbados Seedlings of the B.40' and B.41' series and Demerara Seedlings of the D.1941 series ;

(d) Barbados Seedlings of the B.42' and B.43' series and Demerara Seedlings of the D.1943 series ;

(e) Barbados Seedlings of the B.44' series and Demerara Seedlings of the D.1944 series ;

(f) Barbados Seedlings of the 1945 and 1946 series ;

(g) Demerara Seedlings of the 1945 and 1946 series.

A. Standard Canes.

B.34104 (Co. 281 x B.H. 10/12)

Trial Nos : 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53.

B.34104 now occupies 60.2% of the Colony's acreage. It was used as a standard cane in forty-seven trials reaped, but owing to its weak performance in trials and heavy infestation with 'Leaf Scald' throughout the Colony it is being replaced by B.37161 and B.41227 as standards. These two varieties are also replacing it on estates.

B.41227 (B.35207 x P.O.J. 2878)

Trial Nos : 1, 2, 3, 4, 5, 6, 7, 8, 29, 30, 32, 36, 45, 48, 49, 51, 52, 53.

This variety is now being used as a standard in all new trials. Its general performance in trials reaped during the year was again both good and consistent thus confirming its suitability as a useful standard. It appears to grow well on both clay and pegasse soils and now occupies 12.7% of estates' acreage. It is a heavy yielder with a satisfactory juice quality and ratoons well.

D.14/34 (Co. 281 x Diamond 10)

Co. 419 (P.O.J. 2878 x Co. 290)

Co. 421 (P.O.J. 2878 x B.3412)

These three varieties which were formerly used as standards have not been used as such since 1950. Their commercial use on estates is also being eliminated.

B. Barbados Seedlings prior to the B.40' Series.

B.37161 (B.3365 x B.603)

B.37161 completed its experimental testing since 1950 and it does not appear in any of the trials reaped this year. However, since its rapid extension on estates where its commercial value has been recognised it is being used as a control in trials of recently introduced varieties. It appears capable of good yields on both clay and pegasse soils. Its juice quality is also good.

B.37172 (P.O.J. 2878 x B.2935)

Trial Nos : 11, 31, 45, 53.

B.37172 is now fully tested and offers little attraction as a commercial cane.

C. Barbados Seedlings of the B.40' and B.41' Series and Demerara Seedlings of the D.1941 Series.

B.4098 (B.3439 x Co. 290)

Trial Nos : 25, 26, 30, 31, 32, 49, 50, 52, 53.

B.4098 appears to be a promising variety on clay soils, especially Riverside Clay as indicated in Trial Nos. 30 and 31, but suffers to some extent during ordinary dry spells especially on Pegasse soils and requires frequent irrigations during such seasons. It has found favour on account of its excellent juice quality and is being extended by estates. Its performance in trials, however, did not indicate it to be as good generally as B.41227.

B.40105 (B.3439 x Co. 290)

Trial Nos : 3, 11, 45, 51, 53.

B.40105 was reaped in five trials which included one plant crop, one first ratoon and three second ratoons. Its performance in these and previous trials indicated it to be as good or better than B.34104 but inferior to B.41227. Its juice quality was fair and it ratooned well. Small scale extensions are being carried out on certain estates.

D.142/41 (B.34104 x Co. 213)

Trial Nos : 41, 42, 47, 50, 52.

D.142/41 has been reaped as second ratoons in five trials and is now completely tested. Its behaviour in this crop confirmed previous results in that while proving superior to B.34104, it is inferior to B.41227. Its juice quality is good and it possesses good field habits but ripens slowly. A limited acreage is grown on nearly all estates.

D.158/41 (Co. 421 x D.166/34)

Trial Nos : 3, 25, 26, 27, 40, 47.

D.158/41 was reaped this year in five trials as ratoons against B.34104 and once against B.41227 as plants. It appeared to be slightly better than B.34104 but not as good as B.41227. Its cane yields are good as plants but in many cases disappointing as ratoons. Its juice quality is normally very good.

D. Barbados Seedlings of the B.42' and B.43' Series and Demerara Seedlings of the D.1943 Series.

Of the 1942 Barbados series only B.4214 remained in tests. It was reaped this year in four trials, two plants and two ratoons but did not perform well. Its juice quality was not good.

B.4362 (B.37161 x P.O.J. 2878)

Trial Nos : 13, 20, 21, 27, 28, 31, 41, 49.

B.4362 was reaped in eight trials as ratoons only. Its performance is comparable to B.4098 *i.e.* as good as B.34104 but not up to the standard of B.41227. It has a good juice quality but seems unreliable in cane yield. Estates are however planting small areas for commercial tests.

B.4373 (B.3354 x Co. 290)

Trial Nos : 7, 8.

B.4373 was reaped in two trials as plants only and performed comparatively well against B.34104 and B.41227. It is still being tested in new trials.

B.43214 (B.3353 x Co. 290)

Trial No : 19.

B.43214 was reaped in one trial this year as first ratoons and proved significantly better than B.34104. It has been included in trials with B.41227 to be reaped in 1952. It appears to be a heavy yielding variety with a good juice quality.

B.43253 (B.3439 x B.37175)

Trial Nos : 3, 6, 8, 13, 22, 28.

The results from the six trials in which this variety appeared confirmed its past performance in that while its juice quality was consistently rich, cane yields were not up to standard. It nevertheless compared favourably with B.34104.

B.43349 (B.37227 x B.3337)

Trial Nos : 4, 41.

Reaped in two trials only, *B.43349* gave heavy yields with a moderate juice quality. It will be further tested.

B.43413 (M.D.47 x Co. 290)

Trial Nos : 2, 7, 40.

Reaped in three trials, the performance of this variety was promising. It is being included in estates trials.

D.4/43 (D.200/36 x Diamond 10)

Trial Nos : 2, 3, 33, 36, 39.

Tested mainly at Sophia, the performance of *D.4/43* appears inconsistent both in respect to cane yield and juice quality. It will not be continued further than existing trials.

D.54/43 (Co. 421 x D.166/34)

Trial Nos : 1, 7, 19, 28, 33.

D.54/43 was reaped in five trials. As plants in Trial No. 1, it was equally as good as B.41227. In the five remaining trials it was significantly better than B.34104 as plants, first and second ratoons. Its juice quality was fair and cane yields good. It will be included in further trials with B.41227.

D.62/43 (Co. 421 x Co. 331)

Trial Nos : 1, 2, 7, 8, 20, 21, 29, 33, 36, 37, 43, 48, 50.

Reaped in thirteen trials as plants and ratoons, its performance confirmed the favourable results reported in Bulletins 18 and 19. It was significantly better than B.34104 and in several instances as good as B.41227. Small areas are planted on all estates and favourable reports on it have been received.

E. Barbados Seedlings of the B.44' Series and Demerara Seedlings of the D.1944 Series.

Trial Nos : 1, 4, 6, 7, 8, 10, 25, 30, 34, 35, 38, 44.

The 1944 series of both Barbados and Demerara seedlings were reaped in eight and four trials respectively. Owing to the irregular performance on the whole of these varieties, they do not appear to be capable of competing with B.41227. They will however be further tested.

F. Barbados Seedlings of the B.45' and B.46' Series.

Trial Nos : Sorting Trials.

These were reaped as plants in three trials. *B.46378* (B.35247 x B.3337) appeared to be the most promising in both juice quality and cane yield. It is also an attractive field cane. Other promising varieties of these series are planted in large-scale field trials and will be reaped in 1952.

G. Demerara Seedlings of the D.1945 and D.1946 Series.

Trial Nos : 1, 4, 5, 9, 10, 12, 14, 16, 17, 18, 23, 24.

Seedlings of these series were reaped in twelve trials of both plants and first ratoons. Of the 1945 seedlings, D.37/45 (B.34104 x Co. 331) was the most outstanding. Reaped in three plant and three first ratoons trials it was signifi-

cantly better than B.34104 and compared favourably with B.41227. The 1946 series have not been sufficiently tested to merit any comment. They will, however, be reaped in several trials in 1952.

SUB-SECTION H.—GENERAL SUMMARY AND RECOMMENDATIONS.

Table VI showing the general mean sucrose yields for canes reaped in experiments confirms previous results of the merits of D.62/43 which may be favourably compared with B.41227. Owing to the limited number of experiments in which B.43214 was reaped it can only be regarded as very promising. The results of B.40105, B.4362 and B.4098 are well worth the attention of the Industry. The heavy rains during the year have to some extent lowered the juice quality of B.41227, nevertheless the appearance of the crop seen on estates gives promise of it becoming a major variety.

In the two crop table D.37/45 (B.34104 x Co. 331) has taken a position well worth noting.

TABLE VI.—**Correlated Mean Sucrose Yields in Tons per Acre from all Experiments.**

Variety.	Plants.		First Ratoons.		Second Ratoons.		Total Yield.	Total Yield, *B.41227 =100.00
	Yield.	No. of Expts.	Yield.	No. of Expts.	Yield.	No. of Expts.		
Three Crops, Plants, First and Second Ratoons.								
B. 43214	8.18	2	7.44	2	6.60	1	22.22	128.29
D. 62/43	8.15	15	7.09	10	5.94	7	21.18	122.29
B. 4373	7.58	5	7.31	1	5.92	1	20.81	120.15
B. 40105	8.20	10	6.81	9	5.18	12	20.19	116.57
D. 142/41	7.84	14	7.20	13	5.09	16	20.13	116.22
B. 43413	8.47	5	6.02	2	5.52	2	20.01	115.53
D. 158/41	8.07	13	6.24	12	5.68	8	19.99	115.42
D. 54/43	8.20	10	5.90	7	5.89	3	19.99	115.42
D. 58/43	8.45	8	6.48	8	4.79	3	19.72	113.86
B. 4362	8.17	8	6.10	9	4.90	3	19.17	110.68
B. 37161	7.88	10	5.83	9	5.44	5	19.15	110.57
D. 4/43	7.42	6	6.18	5	5.38	4	18.98	109.58
B. 37172	7.61	6	5.65	5	4.59	6	17.85	103.06
B. 43253	6.82	11	5.58	5	5.33	1	17.73	102.37
B. 4098	7.62	11	5.80	11	4.02	8	17.44	100.69
*B. 41227	6.70	12	5.61	6	5.01	10	17.32	100.00
B. 34104	6.68	97	5.56	91	4.87	61	17.11	98.79
B. 4448	6.28	7	6.32	3	4.36	1	16.96	97.92
B. 44165	6.00	7	4.88	5	4.02	1	14.90	86.03
Two Crops, Plants and First Ratoons.								
D. 37/45	7.99	6	6.69	3	—	—	14.68	119.25
B. 37161	7.88	10	5.83	9	—	—	13.71	111.37
B. 4466	7.13	4	6.47	2	—	—	13.60	110.48
B. 44182	6.56	3	5.83	2	—	—	12.39	100.65
*B. 41227	6.70	12	5.61	6	—	—	12.31	100.00
B. 44244	6.77	10	5.47	5	—	—	12.24	99.43
B. 34104	6.68	97	5.56	91	—	—	12.24	99.43
B. 44341	6.62	7	5.01	5	—	—	11.63	94.48
B. 44111	6.70	9	4.63	5	—	—	11.33	92.04

* **Standard Cane.**

TABLE VII.—**The Quality of the Most Promising Seedlings as Compared with B. 41227**

Variety.	Pol. % Cane.		Juice Purity.		Fibre % Cane.	
	% of B. 41227	No. of Comparisons.	% of B. 41227	No. of Comparisons.	% of B. 41227	No. of Comparisons.
D. 142/41	91.72	4	127.16	4	—	—
D. 158/41	98.04	3	97.74	3	—	—
D. 4/43	101.37	4	99.24	4	—	—
D. 54/43	102.33	2	101.31	2	—	—
D. 62/43	103.78	6	100.29	6	—	—
B. 34104	97.69	12	100.63	12	—	—
B. 37161	100.33	24	100.14	24	—	—
B. 37172	104.04	4	101.61	4	—	—
B. 4098	101.78	8	98.68	8	—	—
B. 40105	102.82	9	98.92	9	—	—
B. 4214	98.36	2	101.70	2	—	—
B. 4362	101.07	2	98.85	2	—	—
B. 4373	113.91	2	102.43	2	—	—
B. 43253	112.81	3	101.88	3	—	—
B. 43413	110.26	2	100.41	2	—	—
B. 4448	99.93	2	95.86	2	—	—
B. 44111	101.76	4	100.00	4	—	—
B. 44165	95.50	3	99.14	3	—	—
B. 44182	93.86	1	101.16	1	—	—
B. 44244	93.72	5	99.34	5	—	—
B. 44341	104.88	3	98.20	3	—	—
*B. 41227	100.00	—	100.00	—	—	—

*Standard Cane.

As the juice quality of B.4098, B.40105, B.4362 and D.62/43 continues to be satisfactory, these varieties should find favour when displacing B.34104 and other varieties. It should, however, be noted that in certain pegasse areas B.4098 might be disappointing while B.37161, B.41227 and D.62/43 appear to be suited to such areas.

Planting recommendations for 1952 remain the same as those given in Bulletin No. 19 of 1950. These are based on the performance of varieties in experiments during 1951 as well as on consideration of the earliest results of commercial reapings of the newer canes. As an approximate guide to planting programmes in 1952, the following are suggested, but it should be noted that the figures given below may be modified as experimental results are obtained from time to time.

Soil Type.

Variety.	*Berbice Clay.*	*East Coast Clay.*	*Riverside Clay.*	*Pegasse.*
B.41227	50	50	45	10
B.37161	25	40	45	50
B.34104	20	5	5	30
B.4098 / B.40105	5	5	5	5

MANURIAL TRIALS.

As in 1949 and 1950, all manurial trials harvested in 1951 involved the use of phosphatic fertilizers. The results of nine such trials are here presented.

A. Trials With Ammonium Phosphate and Superphosphate of Lime on Pegassy Clay.

(A1) *Field 76 R.P., Pln. Providence, 6 x 6 Latin Square.*

(A2) „ *76 R.P.,* „ „ *4 x 4* „ „

(A3) „ *'F' Stewartville, Pln. Leonora, 6 x 6 Latin Square.*

Trial A1, designed with a view to testing the effectiveness of Ammonium Phosphate as a phosphatic manure on this soil type, was reaped as first ratoons. A comparison between Ammonium Phosphate and Superphosphate of Lime was also made and in addition the effect of placement of the fertilizers was investigated.

The treatments involved are as follows :—

(1) 2 Cwt./acre Sulphate of Ammonia.

(2) 2 Cwt./acre Sulphate of Ammonia + 6 cwt/acre Superphosphate of lime.*

*(3) 0.82 Cwt./acre Sulphate of Ammonia + 2.26 cwt/acre Ammonium phosphate.

Each dressing was applied both by the standard estate method (spread by hand along the cane row) and by a 'placement' method in which the fertilizer was buried in a shallow gutter about six inches in depth closely adjacent to the row.

The combined results for both plants and first ratoons of this trial show that there was no significant difference between treatments; there appears, however, to be a slight indication in favour of the 'placement' method in respect of phosphates but not much better than 2 cwt. of Sulphate of Ammonia spread along the cane row.

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* Dressings equivalent in Nitrogen and P_2O_5 content to 2 cwt/acre Sulphate of Ammonia and 6 cwt/acre Superphosphate of Lime (20%).

TABLE I.—**Effect of Phosphatic Manures on Pegassy Clay.**

Treatments per Acre.	Providence, Field 76 R.P. B. 34104. Mean Yields in Tons Cane/Acre.			Tons Sucrose/Acre.		
Rainfall :—112.99 inches.	Plants.	1st Ratoons.	Total for 2 Crops.	Plants.	1st Ratoons.	Total for 2 Crops.
0.82 Cwt. S.A. + 2.26 Cwt. A.P. Estate Method	23.71	34.24	57.95	3.45	4.11	7.56
0.82 „ „ + 2.26 Cwt. A.P. Placement	24.19	38.16	62.35	3.36	4.73	8.09
2 „ „ Estate Method	22.96	35.29	58.25	3.46	4.22	7.68
2 „ „ Placement	23.12	31.94	55.06	3.25	3.98	7.23
2 „ „ + 6 Cwt. S.P. Estate Method	22.56	26.11	48.67	3.22	3.49	6.71
2 „ „ + 6 Cwt. S.P. Placement	24.02	31.27	55.29	3.27	3.90	7.17
Mean :	23.43	32.83		3.33	4.07	
Significant Difference, 20 : 1 :	—	—		—	—	

Trial No. A2 was reaped as first ratoons. This trial was established alongside A1 and was laid out to test the effect of graded dressings of Ammonium Phosphate with Ammonium Sulphate also of graded dressings. The combined results of the two crops show that the two lower levels are by themselves insignificant as well as the two higher levels but some advantage is indicated in favour of the higher levels possibly due to increased Nitrogen. Unfortunately this trial was not laid out to test separately the effects of the phosphatic fertilizer and Ammonium Sulphate.

TABLE II.—**Effect of Phosphatic Manures on Pegassy Clay.**

Treatments per Acre.	Providence, Field 76 R.P. B. 34104. Mean Yields in Tons Cane/Acre.			Tons Sucrose/Acre.		
Rainfall :—112.99 inches.	Plants.	1st Ratoons.	Total for 2 Crops.	Plants.	1st Ratoons.	Total for 2 Crops.
Control	26.49	36.51	63.00	3.87	4.65	8.52
3 Cwt. S.P. + 1½ Cwt. S.A.	23.22	39.66	62.38	3.27	4.86	8.13
6 „ „ + 3 „ „	31.17	41.44	72.61	4.72	5.02	9.74
9 „ „ + 4½ „ „	31.06	40.72	71.78	4.28	4.95	9.23
Mean :	27.98	39.58		4.03	4.87	
Significant Difference, 20 : 1 :	3.36	—		.76	—	

Trial A3 was also designed to test the effect of Ammonium Phosphate with Ammonium Sulphate on Pegassy Clay. Five treatments of graded dressings of Ammonium Phosphate with Sulphate of Ammonia, also in graded dressings, and one treatment of 4 cwt. Ammonium Sulphate. This trial, while showing a significant difference between treatments, also shows that 4 cwt. of Sulphate of Ammonia is as good as 4.5 cwt. Sulphate of Ammonia with 3 cwt. Ammonium Phosphate, and 1.5 cwt. of Sulphate of Ammonia with 4.5 cwt. Ammonium Phosphate but better than the remaining treatments.

TABLE III.—**Effect of Sulphate of Ammonia and Phosphates on Pegassy Clay.**

Treatments per Acre.	Leonora, Field Stewartville "F." B. 41227, Plants. Mean Yields in Tons Cane/Acre.	Tons Sucrose/Acre.
Rainfall :—147.29 inches.		
4.5 Cwt. Amm. Sulph. + 3 cwt. Amm. Phos.	50.34	7.49
4 „ „ „	48.86	7.34
1.5 „ „ „ + 4.5 cwt. Amm. Phos.	47.10	7.05
2.33 „ „ „ + 3 „ „ „	44.34	6.82
3.25 „ „ „ + 3 „ „ „	45.43	6.66
3.25 „ „ „ + 1.5 „ „ „	42.92	6.24
Mean :	46.50	6.93
Significant Difference, 20 : 1 :	4.45	.77

B. Trials With Superphosphate of Lime and Ammonium Sulphate on Pegassy Clays.

(B1) *Field 3 DeW. Pln. De Kinderen, 5 x 5 Latin Square.*
(B2) *„ 4 „ „ „ „ 5 x 5 „ „*
(B3) *Field 10 W. Pln. De Kinderen, 5 x 5 Latin Square.*
(B4) *„ 61 T.D.V. Pln. Tuschen, 5 x 5 „ „*

Trial B1 was designed to test a graded dressing of Sulphate of Ammonia consisting of 2, 4, 6 and 8 cwt/acre and 6 cwt. Sulphate of Ammonia with 6 cwt/acre Superphosphate of Lime. The results show a significant difference in cane yields but the sucrose yields are insignificant with the lowest treatment.

Table IV.—**Effect of Sulphate of Ammonia and Phosphates on Pegassy Clay.**

Treatments per Acre.	De Kinderen, Field 10 West. B. 34104, 1st Ratoons. Mean Yields in	
Rainfall :—97.06 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
10 Cwt. S.A. + 10 Cwt. Phos.	30.35	4.24
10 Cwt. S.A.	29.92	4.19
10 Cwt. S.A. + 6 Cwt. Phos.	27.41	3.83
4 Cwt. S.A. + 6 Cwt. Phos.	25.74	3.82
4 Cwt. S.A.	24.19	3.46
Mean :	27.52	3.91
Significant Difference, 20 : 1 :	2.68	—

No Analysis done for Plant Canes—reaped by Estate.

Trial B2 is a duplicate of trial B1. It comprised the same treatments and similar results were obtained—which seem to suggest a treatment of 2 cwt/acre of Sulphate of Ammonia for these and bordering fields if conditions are similar.

TABLE V.—**Effect of Sulphate of Ammonia and Phosphates on Pegassy Clay.**

Treatments per Acre.	Tuschen, Field 61 T.D.V. B. 34104, 1st Ratoons. Mean Yields in	
Rainfall :—96.83 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
10 Cwt. Amm. Sulph. + 6 cwt. Phos.	35.13	4.90
10 „ „ „ + 10 „ „	35.86	5.02
4 „ „ „ + 6 „ „	30.82	4.30
10 „ „ „	36.37	4.91
4 „ „ „	29.89	4.06
Mean :	33.61	4.64
Significant Difference, 20 : 1 :	2.59	.59

No Analysis done for Plant Canes—reaped by Estate.

Trial B3 was designed to test high levels of Sulphate of Ammonia with and without high levels of Superphosphate of Lime. The results obtained appeared to favour 10 cwt. of Sulphate of Ammonia alone which is equally as good as the same levels of both Sulphate of Ammonia and Superphosphate of Lime.

TABLE VI.—**Effect of Sulphate of Ammonia and Superphosphate on Pegassy Clay.**

Treatments per Acre.	De Kinderen, Field 3 De W. B. 34104, Plants. Mean Yields in	
Rainfall :—172.85 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
6 Cwt. S.A. + 6 Cwt. S.P.	38.56	5.67
4 Cwt. S.A.	35.91	5.63
8 Cwt. S.A.	40.13	5.40
6 Cwt. S.A.	37.50	5.21
2 Cwt. S.A.	34.66	5.14
Mean :	37.35	5.41
Significant Difference, 20 : 1 :	2.06	—

Trial B4 is a duplicate of trial B3 with confirming results. The abnormal high Nitrogen requirement indicated in these two trials however suggests further investigation of cause.

TABLE VII.—**Effect of Sulphate of Ammonia and Superphosphate on Pegassy Clay.**

Treatments per Acre.	De Kinderen, Field 4 De W. B. 34104, Plants. Mean Yields in	
Rainfall :—172.21 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
6 Cwt. S.A. + 6 Cwt. S.P.	33.85	4.65
8 Cwt. S.A.	34.62	4.62
6 Cwt. S.A.	32.42	4.61
4 Cwt. S.A.	32.42	4.50
2 Cwt. S.A.	29.60	4.19
Mean :	32.58	4.51
Significant Difference, 20 : 1 :	3.11	—

C. TRIALS WITH SUPERPHOSPHATE OF LIME AND AMMONIUM SULPHATE ON RIVERSIDE CLAYS.

(C1) *Field 58 V.B. Pln. Wales, 5 x 5 Latin Square.*

(C2) „ *"Patencia G" Pln. Wales, 5 x 5 Latin Square.*

Trials C1 and C2 were both designed to test high levels of Sulphate of Ammonia with and without high levels of Superphosphate on Riverside Clays. The results of both these trials confirmed the original recommendation of 4 cwt/acre of Sulphate of Ammonia to first ratoon on clay soils.

TABLE VIII.—**Effect of Sulphate of Ammonia and Phosphates on Riverside Clay.**

Treatments per Acre.	Wales, Field 58 V.B. B. 34104, 1st Ratoons. Mean Yields in	
Rainfall :—104.82 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
10 Cwt. Amm. Sulph. + 6 Cwt. Phos.	45.29	6.11
10 „ „ „ + 10 „ „	45.07	6.36
4 „ „ „ + 6 „ „	42.17	5.82
10 „ „ „	46.12	6.66
4 „ „ „	41.98	5.88
Mean :	44.13	6.17

Differences not statistically significant.

No Analysis done for Plant Canes—reaped by Estate.

TABLE IX.—**Effect of Sulphate of Ammonia and Phosphates on Riverside Clay.**

Treatments per Acre.	Wales, Field Patencia "G." B. 34104, 1st Ratoons. Mean Yields in	
Rainfall :—116.53 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
10 Cwt. Amm. Sulph. + 6 Cwt. Phos.	44.31	6.19
10 " " " + 10 " "	41.33	5.62
4 " " " + 6 " "	42.19	5.77
10 " " "	44.66	6.57
4 " " "	40.36	6.20
Mean :	42.57	6.07

Differences not statistically significant.

No Analysis done for Plant Canes—reaped by Estate

SUB-SECTION D.—SUMMARY.

The results of the 1951 series of Manurial trials indicate that :—

(1) Ammonium Phosphate does not appear to exercise a beneficial effect on yields of either plants or first ratoons on pegassy clays, nor does it differ in effectiveness as a phosphatic fertilizer from Superphosphate of Lime.

(2) Superphosphate of Lime, applied both with standard estate dressings of Sulphate of Ammonia and Sulphate of Ammonia at high levels, appears to have no influence on yields of plants or first ratoons on pegassy clays or riverside clays.

(3) Sulphate of Ammonia applied at levels higher than the standard dressing of 4 cwt/acre does not show any marked effect in first ratoons of both pegassy clays and riverside clays.

(4) The use of Phosphatic manures on cane lands in the Colony does not appear to be economic.

IRRIGATION TRIALS.

Two irrigation trials, started in 1950 on Frontland Clays, were reaped as plants and first ratoon during the period under review.

The treatments involved were: irrigation by gravitation with water from canals, irrigation by an over-head sprinkler, and no irrigation as control.

During the period of irrigation, marked differences of growth were noted in favour of both irrigated treatments. With the subsequent heavy rains, however, the control plots grew increasingly rapid and more or less equalised the other treatments. The results of both trials proved to be insignificant thus confirming the observations noted during the rains. As frontland clay retains moisture over a longer period than pegasse soil, it might be useful to investigate the effects of over-head irrigation on the latter soil type.

TABLE I.—**Results of an Irrigation Trial on Demerara Frontland Clay.**

Treatments per Acre.	Sophia, Field 12 E. "B." B. 34104, 1st Ratoons. Mean Yields in	
Rainfall :—127.44 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
Overhead Irrigation	46.80	6.74
Gravity „	46.09	6.42
No „	42.88	5.82
Mean:	45.26	6.33
Significant Difference, 20 : 1 :	—	—

TABLE II.—Results of an Irrigation Trial on Demerara Frontland Clay.

Treatments per Acre.	Sophia, Field 7 E. "A." B. 34104, Plants. Mean Yields in	
Rainfall :—147.86 inches.	Tons Cane/Acre.	Tons Sucrose/Acre.
No Irrigation	63.76	9.16
Overhead Irrigation	57.73	8.46
Gravity "	61.53	8.06
Mean :	61.01	8.56
Significant Difference, 20 : 1 :	—	—

	Estate	P.O.J. 2878	D. 14/34	Co. 421	B.34104	Co. 419	Diamond 10	D. 200/36	Mixed	D. 25/38	New Seedlings
Berbice.	Skeldon	—	183.60	—	3,321.90	168.70	—	—	—	—	—
	Port Mourant	16.20	—	—	4,214.20	—	—	—	3.90	—	—
	Albion	2.70	465.00	—	4,356.30	—	—	—	4.20	—	—
	Rose Hall	—	162.90	—	4,317.60	3.30	—	—	1.00	—	—
	Lochaber	84.00	—	24.00	266.00	—	—	—	—	—	—
	Providence "B"	—	595.10	655.40	431.40	23.00	25.00	18.00	—	—	—
	Blairmont	—	775.60	452.30	471.70	9.00	45.00	10.00	19.70	48.00	—
	Bath	—	689.40	410.60	367.15	325.80	—	—	—	—	—
	Total Dutch	102.90	2,871.60	1,542.30	17,746.25	529.80	70.00	28.00	28.80	48.00	—
	Total English	108.15	3,018.05	1,620.96	18,651.31	556.82	73.57	29.43	30.27	50.45	—
	%	.35	9.77	5.25	60.38	1.80	.24	.10	.10	.16	—
East Demerara.	Enmore	5.70	67.30	—	4,764.30	—	—	11.00	26.50	—	—
	Lusignan	36.00	387.60	—	3,473.00	—	—	—	—	—	—
	L.B.I.	—	807.90	—	1,116.90	69.10	—	—	—	—	1.00
	Ogle	2.30	277.80	—	1,343.40	—	48.40	—	—	—	3.20
	Total Dutch	44.00	1,540.60	—	10,697.60	69.10	48.40	11.00	26.50	—	4.20
	Total English	46.24	1,619.17	—	11,243.18	72.62	50.87	11.56	27.85	—	4.41
	%	.28	9.75	—	67.71	.44	.31	.07	.17	—	.03
Demerara River Banks.	Ruimveldt	—	193.00	—	157.50	—	24.50	—	—	—	—
	Houston	—	138.03	—	885.52	—	40.00	—	—	—	—
	Diamond	—	302.00	—	3,241.50	—	150.00	—	—	—	—
	Wales	—	100.00	—	2,772.10	520.60	—	—	1.00	—	—
	Versailles	32.20	220.10	—	1,843.00	—	—	—	8.70	—	—
	Total Dutch	32.20	953.13	—	8,899.62	520.60	214.50	—	9.70	—	—
	Total English	33.84	1,001.74	—	9,353.50	547.15	225.44	—	10.19	—	—
	%	.19	5.65	—	52.80	3.09	1.27	—	.06	—	—
West Demer-ara.	Leonora	—	435.10	—	2,273.00	10.00	—	—	—	—	—
	Uitvlugt	—	481.75	—	4,354.70	125.75	—	—	27.25	—	—
	Total Dutch	—	916.85	—	6,627.60	135.75	—	—	27.25	—	—
	Total English	—	963.61	—	6,965.71	142.67	—	—	28.64	—	—
	%	—	8.34	—	60.33	1.24	—	—	.25	—	—
	Colony English	188.23	6,602.57	1,620.96	46,213.70	1,319.26	349.88	40.99	96.95	50.45	4.41
	%	.25	8.60	2.11	60.21	1.72	.46	.05	.13	.07	.00

D. 62/43	B. 41211	B. 37172	D. 158/41	B. 40102	B. 40105	D. 40/41	B. 43253	B. 4362	B. 46378	D. 37/45	Total
—	21.50	7.60	26.40	—	—	—	—	—	—	—	4,593.30
.20	—	.10	54.80	.10	—	—	—	6.50	—	—	5,521.90
—	7.00	5.60	11.00	—	—	—	—	—	—	—	5,934.60
—	—	—	41.20	—	—	—	—	—	—	—	6,426.60
—	—	—	—	—	—	—	—	—	—	—	451.00
—	—	—	—	—	—	—	—	—	—	—	1,940.20
4.00	—	—	6.90	—	—	—	1.20	—	.05	.05	2,563.45
—	—	—	—	—	—	—	—	—	—	—	1,961.75
4.20	28.50	13.30	140.30	.10	—	—	1.20	6.50	.05	.05	29,392.80
4.41	29.95	13.98	147.46	.11	—	—	1.26	6.83	.05	.05	30,891.83
.01	.10	.05	.48	.00	—	—	.00	.01	.00	.00	100.00
—	—	—	—	—	—	—	—	—	—	—	4,884.80
4.50	—	—	.50	—	—	—	—	—	—	—	4,004.00
1.50	—	—	2.80	126.10	348.60	9.00	—	.30	.20	—	4,093.50
3.00	—	—	44.60	—	6.20	—	—	—	—	—	2,815.70
9.00	—	—	47.90	126.10	354.80	9.00	—	.30	.20	—	15,798.00
9.46	—	—	50.34	132.53	372.89	9.46	—	.32	.21	—	16,603.70
.06	—	—	.30	.80	2.25	.06	—	.00	.00	—	100.00
—	—	—	4.00	—	—	—	—	—	—	—	704.00
—	—	—	—	—	—	—	—	—	—	—	1,101.27
16.00	—	—	—	—	—	—	—	41.00	—	—	8,535.50
1.30	—	—	8.10	—	—	—	—	.10	—	.10	3,979.10
5.00	—	—	13.00	—	—	—	—	—	—	—	2,536.70
22.30	—	—	25.10	—	—	—	—	41.10	—	.10	16,856.57
23.44	—	—	26.38	—	—	—	—	43.20	—	.11	17,716.25
.13	—	—	.15	—	—	—	—	.24	—	.00	100.00
—	—	—	—	—	—	—	—	—	—	—	4,385.00
37.25	—	—	—	—	—	—	4.00	—	—	—	6,599.80
37.25	—	—	—	—	—	—	4.00	—	—	—	10,984.80
39.15	—	—	—	—	—	—	4.20	—	—	—	11,545.02
.34	—	—	—	—	—	—	.04	—	—	—	100.00
76.46	29.95	13.98	224.18	132.64	372.89	9.46	5.46	50.35	.26	.16	76,756.80
.10	.04	.02	.29	.17	.49	.01	.00	.07	.00	.00	100.00

THE VARIETY AND FERTILIZER POSITION OF THE SUGAR INDUSTRY, XVII.

By

C. CAMERON,
Sugar Agronomist (Acting)

VARIETAL COMPOSITION OF THE 1952 HARVESTS.

The tables summarising the variety position for 1952 have been prepared along similar lines to those published in Bulletins 17 — 19. They contain data abstracted from returns supplied by the Sugar Estates and refer only to estate-grown canes approximately 98% of the total acreage reaped in the Colony.

Table 1 shows the varietal position on an estate basis, while Table 11 summarises that information for the Colony as a whole.

Table III shows the acreage occupied by the varieties which make up the 'other canes' category in Table II. Table IV indicates the trend of varietal planting over the last eight years.

TABLE I (facing this page—inset).

TABLE II.—**Percentage Distribution of the Varieties to be Reaped in 1952.**

Variety.	Total English Acres in the Colony.		Percentage.			
			In West Demerara.	Along Demerara River Banks.	In East Demerara.	In Berbice.
B. 34104	46,213.70	(60.2)	15.1	20.2	24.3	40.4
B. 41227	9,754.66	(12.7)	12.6	29.0	16.8	41.6
B. 37161	7,195.30	(9.4)	24.6	36.1	14.6	24.7
D. 14/34	6,602.57	(8.6)	14.6	15.2	24.5	45.7
Co. 421	1,620.96	(2.1)	—	—	—	100.0
Co. 419	1,319.26	(1.7)	10.8	41.5	5.5	42.2
D. 142/41	1,211.23	(1.6)	28.2	34.8	14.5	22.5
B. 4098	997.50	(1.3)	16.5	27.8	0.2	55.5
B. 40105	372.90	(.5)	—	—	100.0	—
Diamond 10	349.88	(.4)	—	64.4	14.6	21.0
D. 158/41	224.18	(.3)	—	11.8	22.4	65.8
Other Canes	894.66	(1.2)	8.2	16.6	43.4	31.8
	76,756.80	(100.0)				

TABLE III.—Acreages of the Varieties Constituting "Other Canes."

Variety.	English Acres.		Variety.	English Acres.		Variety.	English Acres.	
	1951	1952		1951	1952		1951	1952
P.O.J. 2878	—	188	D. 49/41	181	194	B. 4098	178	—
D. 166/34	4	—	D. 158/41	82	—	B. 40102	133	133
D. 25/38	56	50	B. 37172	6	14	B. 40105	107	—
D. 26/39	29	1	B. 41211	7	30	New Seedlings	5	4
D. 21/40	4	—						

TABLE IV.—Comparison of Areas Under Various Canes in British Guiana, 1945-1952.

Variety.	Per Cent of Total Areas in the Colony.							
	1945	1946	1947	1948	1949	1950	1951	1952
Diamond 10	26.7	25.4	21.6	14.4	8.4	3.1	0.9	0.4
P.O.J. 2878	54.8	40.4	27.6	13.6	6.9	1.6	0.4	—
D. 166/34	2.2	1.6	1.0	0.5	—	—	—	—
Co. 419	4.9	6.5	7.7	8.2	6.8	4.5	2.7	1.7
Co. 421	6.3	15.1	19.4	19.3	14.2	8.5	3.5	2.1
D. 14/34	2.7	6.4	11.3	17.4	20.6	20.2	15.0	8.6
B. 34104	—	1.6	7.6	22.6	39.8	58.4	67.4	60.2
B. 4098	—	—	—	—	—	—	—	1.3
D. 200/36	—	—	1.5	1.9	1.7	0.7	—	—
B. 37161	—	—	—	—	—	1.4	3.6	9.4
B. 40105	—	—	—	—	—	—	—	0.5
B. 41227	—	—	—	—	—	0.3	3.8	12.7
D. 142/41	—	—	—	—	—	0.2	1.4	1.6
D. 158/41	—	—	—	—	—	—	—	0.3
Other Canes	2.4	3.0	2.3	2.1	1.6	1.1	1.3	1.2

It will be seen from the tabulated data that the variety position in 1952 is still dominated by B.34104, although the acreage in this is approximately 7% less than in 1951. This is due to its marked susceptibility to 'Leaf Scald' and because of this fact it is unlikely that it will be planted on as large a scale as before. It now occupies 60.2% of the total acreage in the Colony. Its nearest rival is B.41227 (12.7%) which is being rapidly extended. Following closely is B.37161 (9.4%) which is performing well and is also being much extended. D.14/34 which occupied approximately 15% in 1950, is being gradually reduced in favour of recently introduced promising varieties. Its present position is now fourth with 8.6%.

The varieties presently attracting commercial interest are—B.41227, B.37161, B.4098, B.4362 and D.62/43. The last mentioned, however, has not yet been reaped commercially but its over-all performance in trials and general field characteristics have attracted much attention on estates. It appears to be suitable to both clay and pegasse soils.

There has been an appreciable increase of over 6,000 acres in the area under cane this year which is mainly due to increased use of mechanical appliances. The total area under cane is now 76,756 acres as compared with 70,270 acres last year.

CYCLE AGE OF THE CROPS.

Table V shows that of a cycle of six crops there has been a reduction in the first three by 6.5 per cent.

TABLE V.—**Cycle Age of the Crops, 1949—1952.**

Category.	Percentages in				Category.	Percentages in			
	1949	1950	1951	1952		1949	1950	1951	1952
Plants	31.2	33.1	28.8	27.8	3rd Ratoons	15.2	12.6	15.1	18.8
1st Ratoons	26.5	27.4	28.2	23.4	4th Ratoons	2.0	3.1	3.0	5.4
2nd Ratoons	24.8	23.3	24.4	23.7	5th Ratoons	0.3	0.5	0.5	0.9

COMMERCIAL YIELDS.

The Tables showing the yields of varieties under estate conditions have again been drawn up on a regional basis. The estates comprising the four categories are as follows :—

East Coast Demerara (Table VI A)— Plns. Ogle, La Bonne Intention, Lusignan and Enmore ;

West Coast Demerara (Table VI B)— Plns. Uitvlugt *cum annexis* and Leonora and Cornelia Ida ;

Demerara River Banks (Table VI C)— Plns. Diamond *cum annexis* (including Peter's Hall, Providence and Farm), Ruimveldt, Houston, Versailles, Schoon Ord and Wales ;

Berbice (Table VI D)— Plns. Blairmont, Bath, Providence, Rose Hall, Albion, Port Mourant and Skeldon.

The data contained in Tables VI A, B, C, and D are summarised for the whole Colony in Table VI E. Undue importance should not be attached to the returns from small acreages and an arbitrary standard of 100 acres has been selected as the minimum for which performance data may be considered reliable.

TABLE VIa.—**Weighted Mean Commercial Yields in East Demerara, 1951.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant Canes.			
		100 Acres	*and over.*		
B. 37161	162.4	13.85	82.58	—	4.07
B. 41227	471.1	13.72	82.11	—	3.95
B. 34104	2,916.9	13.85	82.17	—	3.90
		Under 100	*Acres.*		
B. 40102	57.3	12.34	81.40	—	4.96
B. 40105	58.5	13.65	82.13	—	4.74
D. 49/41	91.1	14.63	83.62	—	3.74
D. 142/41	95.9	13.46	82.40	—	3.70
D. 158/41	27.1	14.85	83.35	—	3.36
D. 14/34	94.2	14.03	82.54	—	3.18
		First	*Ratoons.*		
		100 Acres	*and over.*		
B. 34104	2,571.0	13.87	82.08	—	3.72
D. 14/34	1,070.0	13.60	82.16	—	3.17
		Under 100	*Acres.*		
B. 40102	62.5	13.57	82.00	—	4.11
B. 40105	25.9	14.09	82.58	—	3.98
B. 37161	64.6	13.98	82.04	—	3.86
D. 49/41	38.9	13.19	82.25	—	3.49
B. 41227	65.3	13.37	82.11	—	3.48
D. 142/41	55.5	13.79	81.95	—	3.39
		Second	*Ratoons.*		
		100 Acres	*and over.*		
B. 34104	1,951.3	13.92	82.69	—	3.37
Co. 419	120.4	12.87	81.71	—	3.35
D. 14/34	882.6	13.14	79.83	—	2.84
		Under 100	*Acres.*		
D. 142/41	8.5	15.54	83.55	—	4.71
B. 41227	9.0	15.35	82.74	—	4.00
B. 40102	6.3	13.02	82.12	—	3.49
D. 40/41	9.0	14.70	82.01	—	3.44
B. 40105	2.5	13.57	81.98	—	3.20
D. 49/41	5.3	14.68	82.21	—	3.02
B. 37161	10.5	13.81	83.83	—	2.86
Diamond 10	81.6	14.18	83.85	—	2.60
D. 200/36	25.0	12.58	80.64	—	1.76
Co. 421	71.0	11.71	79.29	—	1.58
		Third	*Ratoons.*		
		100 Acres	*and over.*		
B. 34104	1,054.0	13.71	82.32	—	3.09
D. 14/34	486.7	13.40	82.14	—	2.68
		Under 100	*Acres.*		
Co. 419	66.8	13.54	82.19	—	3.34
Diamond 10	97.8	13.42	81.34	—	2.36
D. 200/36	36.2	12.23	79.12	—	2.26
B. 37161	1.0	10.92	78.54	—	2.00
P.O.J. 2878	10.0	12.06	77.31	—	2.00
		Fourth	*Ratoons.*		
		Under 100	*Acres.*		
D. 14/34	10.0	12.07	81.72	—	2.60
B. 34104	68.5	13.01	82.29	—	2.58
		Fifth	*Ratoons.*		
		Under 100	*Acres.*		
Co. 421	35.0	13.19	81.27	—	2.97

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VIb.—**Weighted Mean Commercial Yields in West Demerara, 1951.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
B. 37161	253.0	14.23	83.47	13.94	4.40
B. 41227	160.7	13.91	82.38	—	4.05
D. 142/41	221.9	14.99	84.33	—	4.04
B. 34104	1,817.2	14.59	83.77	—	3.33
		Under 100	*Acres.*		
B. 4098	10.0	13.19	82.73	13.88	5.20
D. 14/34	23.0	14.26	83.90	—	3.56
		First 100 Acres	*Ratoons. and over.*		
D. 14/34	458.6	14.91	85.00	13.65	3.52
B. 34104	2,816.8	14.39	83.59	—	2.98
		Under 100	*Acres.*		
B. 41227	5.9	15.72	85.90	14.20	4.07
B. 37161	23.7	13.53	81.53	13.97	3.92
D. 142/41	29.0	15.98	85.97	13.80	3.78
D. 26/39	22.0	16.22	87.55	13.84	3.55
Co. 419	60.9	14.70	83.93	12.20	2.75
Mixed	2.5	14.88	84.13	—	2.00
		Second 100 Acres	*Ratoons. and over.*		
B. 34104	1,807.4	14.34	83.74	13.90	3.08
Co. 419	114.5	14.95	83.14	—	3.02
D. 14/34	834.1	15.06	84.92	13.83	2.71
		Under 100	*Acres.*		
B. 37161	23.2	15.05	82.82	—	3.92
Mixed	9.5	15.27	83.81	—	2.95
		Third 100 Acres	*Ratoons. and over.*		
B. 34104	1,090.7	14.30	83.38	—	3.15
D. 14/34	166.0	14.89	84.53	—	2.58
		Under 100	*Acres.*		
B. 37161	34.0	13.83	84.00	—	3.56
Co. 419	68.0	15.27	84.28	—	2.37
		Fourth 100 Acres	*Ratoons. and over.*		
B. 34104	138.5	14.55	84.11	—	3.12

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VIc.—**Weighted Mean Commercial Yields along Demerara River Banks, 1951.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
B. 41227	700.5	13.94	82.71	13.90	4.06
B. 37161	677.0	14.04	83.27	13.93	3.85
D. 14/34	131.4	15.39	84.44	14.01	3.61
D. 142/41	249.8	13.95	82.86	13.80	3.48
B. 34104	2,158.9	13.98	83.30	13.04	2.90
		Under 100	*Acres.*		
B. 4098	8.6	15.91	85.74	13.70	4.09
D. 49/41	20.5	13.84	82.12	—	4.05
D. 158/41	13.4	16.07	84.76	13.80	3.96
Seedlings	51.0	12.42	79.58	—	3.88
		First 100 Acres	*Ratoons. and over.*		
B. 37161	443.0	13.59	83.20	—	3.64
B. 34104	3,356.8	13.76	83.57	13.15	3.28
D. 14/34	687.0	14.61	84.05	17.80	2.97
		Under 100	*Acres.*		
Mixed	2.0	14.85	82.12	—	4.18
B. 41227	53.7	13.40	83.33	—	3.76
D. 142/41	36.2	13.46	81.81	13.20	3.27
Diamond 10	21.3	14.51	83.60	—	2.61
P.O.J. 2878	3.3	14.85	83.18	—	2.47
D. 26/39	3.0	12.08	81.60	—	2.00
D. 49/41	6.0	14.84	84.80	—	1.83
		Second 100 Acres	*Ratoons. and over.*		
B. 34104	3,257.5	13.92	83.40	13.53	3.02
D. 14/34	888.6	14.53	84.48	13.85	2.48
		Under 100	*Acres.*		
P.O.J. 2878	29.0	14.28	82.72	—	3.14
B. 37161	4.0	13.72	84.20	—	3.00
Diamond 10	95.0	14.83	83.47	14.06	2.46
		Third 100 Acres	*Ratoons. and over.*		
Co. 419	252.5	14.65	82.57	—	3.00
B. 34104	972.5	14.12	84.17	14.00	2.89
D. 14/34	176.5	13.12	82.99	—	1.67
		Under 100	*Acres.*		
B. 37161	9.5	13.74	83.45	—	3.37
D. 21/40	4.0	13.72	82.80	—	2.26
		Fourth 100 Acres	*Ratoons. and over.*		
Diamond 10	190.0	14.22	83.23	—	4.17
		Under 100	*Acres.*		
B. 34104	66.0	14.57	85.55	—	2.06

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VId.—**Weighted Mean Commercial Yields in Berbice, 1951.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
B. 41227	351.0	13.38	81.15	—	4.24
D. 142/41	156.6	14.29	81.63	—	4.12
B. 34104	4,243.5	14.43	83.07	—	3.97
B. 37161	161.3	12.26	79.68	—	3.90
D. 14/34	577.7	14.75	83.81	—	2.77
		Under 100	*Acres.*		
D. 49/41	9.3	15.77	83.93	—	5.10
D. 158/41	11.4	14.92	80.94	—	4.90
B. 4098	66.2	13.22	80.47	—	3.94
B. 37172	3.0	16.47	85.20	—	3.93
Mixed	3.2	14.55	84.01	—	3.90
B. 43253	1.2	14.66	80.99	—	2.98
		First 100 Acres	*Ratoons. and over.*		
B. 34104	4,940.3	13.93	82.68	—	3.89
D. 14/34	945.0	14.86	84.15	—	3.00
Co. 421	246.9	13.68	81.54	—	2.82
Co. 419	272.5	13.69	80.59	—	2.45
		Under 100	*Acres.*		
B. 37172	1.9	14.58	83.68	—	5.95
B. 41227	13.6	15.72	83.40	—	4.74
B. 41211	6.3	11.59	73.85	—	4.38
B. 37161	99.0	13.04	80.46	—	4.18
D. 142/41	2.1	14.31	79.88	—	4.11
D. 158/41	12.4	13.87	80.29	—	2.97
		Second 100 Acres	*Ratoons. and over.*		
B. 34104	4,169.2	14.22	82.87	—	3.66
Co. 419	229.3	13.83	79.22	—	2.94
D. 14/34	744.5	14.83	82.76	—	2.77
Co. 421	1,285.7	13.72	81.22	—	2.64
		Under 100	*Acres.*		
B. 37161	9.8	14.72	83.36	—	4.81
Mixed	3.0	14.29	81.50	—	4.69
B. 41227	32.9	15.39	81.78	—	4.53
D. 142/41	2.9	13.40	80.75	—	3.19
D. 200/36	9.0	12.25	79.64	—	2.51
D. 25/38	48.0	12.17	79.68	—	2.14
		Third 100 Acres	*Ratoons. and over.*		
B. 34104	2,772.3	14.04	82.90	—	3.66
Co. 419	401.1	13.52	80.43	—	3.18
D. 14/34	1,303.8	13.90	82.46	—	2.89
Diamond 10	106.0	—	—	—	2.82
Co. 421	684.2	13.81	81.08	—	2.46
		Under 100	*Acres.*		
D. 200/36	29.5	14.08	81.93	—	3.09
D. 25/38	4.5	14.31	81.59	—	2.81
P.O.J. 2878	20.9	14.98	85.85	—	2.42
		Fourth 100 Acres	*Ratoons. and over.*		
Co. 419	160.8	12.44	78.89	—	3.32
B. 34104	642.6	14.02	82.22	—	3.13
D. 14/34	674.0	13.83	82.31	—	2.64
		Under 100	*Acres.*		
B. 37161	7.6	15.24	82.37	—	4.01
D. 200/36	10.0	16.95	82.50	—	3.69
Co. 421	91.1	12.95	80.62	—	3.16
D. 142/41	19.6	16.57	84.09	—	3.04
Mixed	22.5	—	—	—	2.57
P.O.J. 2878	17.5	13.79	80.17	—	1.92
D. 166/34	4.0	11.12	79.75	—	1.68
		Fifth Under 100	*Ratoons. Acres.*		
B. 34104	7.4	12.70	81.41	—	3.51
Co. 419	91.0	13.30	80.56	—	3.45
Co. 421	54.4	12.66	79.77	—	3.20

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI e.—**Weighted Mean Commercial Yields Under Estate Conditions, 1951.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
B. 41227	1,683.3	13.76	82.18	14.73	4.07
B. 37161	1,253.7	13.83	82.76	13.26	3.99
D. 49/41	120.9	14.58	83.39	—	3.90
D. 142/41	724.2	14.28	82.98	17.15	3.82
B. 34104	10,401.5	14.21	82.92	13.77	3.72
D. 14/34	826.3	14.76	83.77	10.29	2.97
		Under 100	*Acres.*		
B. 40102	57.3	12.34	81.40	—	4.96
B. 40105	58.5	13.65	82.13	—	4.74
B. 4098	84.8	13.49	81.27	13.35	4.10
D. 158/41	51.9	15.18	83.19	12.45	3.85
		First 100 Acres	*Ratoons. and over.*		
B. 37161	630.3	13.54	82.59	13.97	3.76
B. 41227	138.5	13.71	82.87	14.20	3.74
B. 34104	12,948.5	13.98	82.88	13.26	3.54
D. 142/41	122.9	14.22	82.82	11.45	3.46
D. 14/34	3,160.6	14.39	83.58	13.25	3.13
Co. 421	246.9	13.68	81.54	—	2.82
Co. 419	333.5	13.88	81.20	15.30	2.51
		Under 100	*Acres.*		
B. 41211	6.3	11.59	73.85	—	4.38
B. 40102	62.6	13.57	82.00	—	4.12
B. 40105	25.9	14.09	82.58	—	3.98
D. 26/39	25.0	15.72	86.84	13.84	3.36
D. 49/41	44.9	13.41	82.59	—	3.27
D. 158/41	12.9	13.96	80.46	—	2.96
Diamond 10	21.3	14.51	83.60	—	2.61
		Second 100 Acres	*Ratoons. and over.*		
B. 34104	10,410.4	14.13	83.14	13.75	3.36
Co. 419	464.2	13.86	80.83	—	3.06
D. 14/34	3,311.4	14.35	82.94	10.25	2.70
Co. 421	1,356.7	13.61	81.12	—	2.59
Diamond 10	176.6	14.53	83.65	11.13	2.47
		Under 100	*Acres.*		
B. 41227	41.9	15.38	81.99	—	4.42
D. 142/41	11.4	15.00	82.84	—	4.32
B. 37161	47.5	13.48	76.95	—	3.79
B. 40102	6.3	13.02	82.12	—	3.49
D. 40/41	9.0	14.70	82.01	—	3.44
Mixed	12.5	13.89	76.74	—	3.37
B. 40105	2.5	13.57	81.98	—	3.20
P.O.J. 2878	29.0	14.28	82.72	—	3.14
D. 49/41	5.3	14.68	82.21	—	3.02
D. 25/38	48.0	12.17	79.68	—	2.14
D. 200/36	34.0	12.49	80.38	—	1.96
		Third 100 Acres	*Ratoons. and over.*		
B. 34104	5,676.5	14.03	83.02	12.10	3.38
Co. 419	599.0	13.84	81.29	—	3.08
D. 14/34	2,133.0	13.80	82.59	—	2.72
Diamond 10	203.8	13.42	81.34	—	2.60
Co. 421	684.2	13.81	81.08	—	2.46
		Under 100	*Acres.*		
B. 37161	44.8	13.75	83.75	—	3.51
D. 200/36	65.7	13.06	80.38	—	2.63
P.O.J. 2878	30.9	14.03	83.09	—	2.28
		Fourth 100 Acres	*Ratoons. and over.*		
Diamond 10	190.0	14.22	83.23	—	4.17
Co. 419	160.8	12.44	78.89	—	3.32
B. 34104	915.6	14.06	82.75	—	3.01
D. 14/34	684.0	13.81	82.30	—	2.64
		Under 100	*Acres.*		
B. 37161	7.6	15.24	82.37	—	4.01
D. 200/36	10.0	16.95	82.50	—	3.69
Co. 421	91.1	12.95	80.62	—	3.16
D. 142/41	19.6	16.57	84.09	—	3.04
Mixed	22.6	—	—	—	2.57
P.O.J. 2878	17.5	15.20	84.20	—	1.35
		Fifth Under 100	*Ratoons. Acres.*		
B. 34104	7.4	12.70	81.41	—	3.51
Co. 419	91.0	13.30	80.56	—	3.45
Co. 421	89.4	12.87	80.36	—	3.11

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

VARIETIES GROWN ON COMMERCIAL SCALE.

The total area under cultivation was 76,756 acres of which B.34104 occupied 60.2 per cent, B.37161—9.4 per cent, B.4098—1.3 per cent, B.41227—12.7 per cent. Owing to the susceptibility to 'Leaf Scald' of B.34104 on most estates, it is being rapidly replaced by B.41227 and B.37161 and to a less extent by B.4098. The variety B.37161 appears to be suitable on both frontland and pegasse clays and well reported on by most estates.

The variety B.4098 has quite recently attracted attention by the results of certain trials. It is being cautiously extended on estates owing to the fact that while it appears to do very well on frontland and riverside clays, it can be very disappointing on pegasse soil. It appears to be very susceptible to normal dry weather and for this reason may need frequent irrigations. B.41227 on the other hand is proving to be an excellent variety and its superiority to the older ones in commercial use merits its rapid extension.

FERTILIZERS IN 1951.

Table VII presents statistics relative to the value and quantity of fertilizers used in British Guiana for the three years 1949, 1950 and 1951. Data used in this table has been kindly supplied by estate Managers.

TABLE VII.—Values and Quantities of Fertilizers Used on British Guiana Sugar Estates, 1949—1951

Fertilizers.	Value. $			Per cent. of Total Value.			Per Ton. $			Quantity. Tons.			Per cent. of Total Quantity.		
	1949	1950	1951	1949	1950	1951	1949	1950	1951	1949	1950	1951	1949	1950	1951
Ammonium Sulphate	1,010,207.16	1,501,400.71	1,777,813.78	81.7	91.4	90.7	107.69	113.31	128.00	9,380.59	13,250.17	13,889.47	53.2	68.0	66.9
Calcium Cyanamide	20,568.78	4,535.73	992.00	1.7	.3	.1	130.30	126.24	124.00	157.85	35.93	8.00	.9	.1	...
Basic Slag	77,902.58	12,812.85	62,539.90	6.3	.7	3.2	62.28	59.27	78.50	1,250.82	216.18	796.70	7.1	1.3	3.8
Superphosphate	554.60	595.95	451.80	...	.1	...	56.59	58.89	62.75	9.80	10.12	7.20	.1	...	...
Limestone	107,426.41	100,023.61	116,960.73	8.7	6.1	6.0	17.04	18.65	19.36	6,304.07	5,363.60	6,040.48	35.7	27.6	29.1
Rock Phosphate	19,275.93	22,403.86	990.21	1.6	1.4	...	36.75	38.02	40.88	524.55	589.25	24.25	3.0	3.0	.2
TOTAL	1,235,935.46	1,641,772.71	1,959,748.42	100.0	100.0	100.0	...	...	...	17,627.68	19,465.25	20,766.10	100.0	100.0	100.0

REPORT ON THE SUGAR EXPERIMENT STATIONS FOR THE YEAR 1951.

STAFF.

W. H. C. Knowles, A.I.C.T.A., Dip. Agr.	*Sugar Agronomist, (to February).*
C. Cameron	*Sugar Agronomist, actg. (from 20th February).*
D. L. Corsbie	*Field Assistant, (to September).*
H. I. Gomes	*Field Assistant.*
K. Yhap	*Field Assistant, (1st—30th August).*
G. L. Knight	*Field Assistant, (from September)*
C. A. V. Smith	*Laboratory Assistant.*
D. K. Cameron	*Typist.*

2. Mr. Knowles resigned the post of Sugar Agronomist on the 19th February to take up an appointment as Cultivation Officer, Department of Agriculture, Barbados. Mr. Cameron served as his *locum tenens.*

3. Mr. Corsbie resigned the post of First Field Assistant on the 30th September to enrol at the Imperial College of Tropical Agriculture in October on a Bookers Scholarship in Sugar Technology.

Subsequent to Mr. Corsbie's resignation, Mr. Gomes was appointed First Field Assistant from 1st October.

4. Mr. Yhap after serving for one month only, resigned as Second Field Assistant on the 31st August.

Mr. Knight was appointed Third Field Assistant from September 1st while the post of Second Field Assistant remained vacant.

5. Absences of the Staff from duty during the year were as follows :—

	Casual Leave.	*Sick Leave.*	*Vacation Leave.*
Mr. Cameron — —	2—13.1.51	15—19.10.51	—
Mr. Gomes — — —	11—27.6.51	—	—
Miss Cameron — —	25.6—3.7.51 and 17—24.12.51	—	—

COMMITTEE.

6. The following members formed the British Guiana Sugar Experiment Stations' Committee for the year :—

The Director of Agriculture	.....	*Chairman.*
Mr. R. R. Follett-Smith	.....	*Messrs. Bookers Sugar Estates, Ltd.*
Mr. G. M. Eccles	.....	*Messrs. S. Davson & Co., Ltd. (to June)*
Mr. L. S. Birkett	.....	*Messrs. S. Davson & Co. Ltd.*
Mr. H. R. Barnwell	.....	*Messrs. Sandbach, Parker & Co., Ltd.*
Mr. H. A. Barclay	.....	*Messrs. Bookers Sugar Estates, Ltd.*
Mr. R. F. Milne	.....	*Messrs. Bookers Sugar Estates, Ltd.*
Mr. J. Baxter	.....	*Messrs. Bookers Sugar Estates, Ltd. (July—October)*
Mr. A. A. D. Martin	.....	*Department of Agriculture Secretary, (to June)*
Capt. J. F. Irving, M.C.	.....	*Department of Agriculture Secretary, (July—August)*
Mr. S. A. Angoy	.....	*Department of Agriculture Secretary (from September)*

This Committee met once only—4th December—during the year.

RESEARCH SUB-COMMITTEE.

7. The following members formed the British Guiana Sugar Experiment Stations' Research Sub-Committee for the year :—

The Director of Agriculture	.....	*Chairman.*
Mr. L. D. Cleare	.....	*Deputy Director of Agriculture.*
Mr. R. R. Follett-Smith	.....	*Messrs. Bookers Sugar Estates, Ltd.*
Mr. J. F. Williams	.....	*Messrs. Bookers Sugar Estates, Ltd.*
Mr. L. S. Birkett	.....	*Messrs. Davson & Co., Ltd.*
Mr. H. R. Barnwell	.....	*Messrs. Sandbach, Parker & Co., Ltd.*
Mr. M. D. Ffrench-Mullen		*Chief Research Officer, Department of Agriculture.*
Mr. J. F. Bates	.....	*Entomologist, Department of Agriculture, (to August).*
Mr. J. S. Robertson	.....	*Plant Pathologist, Department of Agriculture, (from September)*
Mr. W. H. C. Knowles	.....	*Sugar Agronomist and Secretary, (to February)*
Mr. C. Cameron	.....	*Sugar Agronomist, (Actg.)*
Mr. A. A. D. Martin	.....	*Secretary, (to June)*
Capt. J. F. Irving, M.C.	.....	*Secretary, (July to August)*
Mr. S. A. Angoy	.....	*Secretary, (from September)*

Meetings were held in January, February, May (twice), July, September, and December, 1951.

FINANCE.

8. The sum of $49,477.80 was voted from the funds of the Sugar Experiment Stations' Committee for the working of the Station during the year; the total amount expended was $45,947.38. Of the amount spent from the Stations' vote, the sum of $5,798.37 was used for Pathological Laboratory, Equipment, Nurseries, etc.

9. Receipts from assessments for the year amounted to $28,446.40 those from sale of canes to $24,443.64 and miscellaneous receipts to $609.18.

EQUIPMENT.

10. During the year the office of the Sugar Agronomist was renovated and equipped as the Pathological Laboratory and a similar building was erected for the Sugar Agronomist. Changes were also made to the Juice Testing Laboratory and portions of the general office. Two nurseries with glass roofs were also erected for use by the Plant Pathologist. In addition a small building was erected for the Lorry-driver. Following on the forementioned alterations electric power has been provided.

SEEDLINGS INTRODUCTION.

11. Cane varieties received during the year from the Central Breeding Station, Barbados, B.W.I. were as follows: B.S.4905, B.S.4945, B.S.4968, B.S. 4970, B.4906, B.4942, B.4956, B.4966, B.4995, B.49122, B.49166, B.49186, B.49197, B.49198, B.49229, B.49257, B.49301, B.49309, B.49311, B.49346, B.49353, B.49354, B.49355, B.49376, B.49377, B.49378, B.49380, and B.49388.

TABLE I.—**Barbados Seedlings in Tests and Undergoing Multiplication, etc., December, 1951.**

Year.	Number of Seedlings	
	In Test.	Under Multiplication, etc.
1934	1	—
1937	2	2
1940	2	2
1941	1	1
1942	1	1
1943	7	7
1944	8	6
1945	15	11
1946	31	29
1947	34	30
1948	26	20
Total	128	109

TABLE II.—**Demerara Seedlings in Tests and Undergoing Multiplication, etc., December, 1951.**

Year.	Number of Seedlings.	
	In Test.	Under Multiplication, etc.
1943	6	7
1944	4	—
1945	55	40
1946	51	70
1947	Breeding work ceased in 1946.	
Total	116	117

EXPERIMENTS.

12. Experiments reaped during the year have been fully reported on elsewhere in this Bulletin. These consisted of 51 variety, 9 manurial and 2 irrigation trials. At the end of the year there were 54 variety, 4 variety-sorting, 12 manurial and 2 irrigation trials in progress.

MISCELLANEOUS.

13. Table iii gives statistics for recent years as to field experiments started and reaped, cane cuttings distributed, cane samples analysed, etc.

TABLE III.—Statistics of Seedlings, Cane Distribution, Field Experiments, Cane and Soil Samples, Cane Sold and Visits Paid to Estates, 1942-1951.

Year.	Seedlings Basketed.	Cane Cuttings Distributed.		Field Experiments.		Cane Samples.		Soil Samples Taken.	Cane Sold to Pln. Ogle.		No. of Days Visiting Estates.
		No. of Cuttings.	No. of Bags.	Started.	Harvested.	No. Taken and analysed.	Cane Crushed	(Tons).	Deliveries (Tons).	Net Receipts. $	
1942	6,007	881,660	6,782	28	74	909	21	9	1,476.70	3,718.98	212
1943	8,951	524,810	4,037	19	78	819	16	159	1,352.85	3,525.65	211
1944	12,903	602,420	4,634	11	72	434	14	31	1,590.09	5,053.26	139
1945	6,043	578,240	4,448	98*	118†	605	14	95	1,461.02	6,812.25	173
1946	3,896	447,230	3,671	55*	111†	505	15	51	1,750.20	8,776.95	177
1947	—	172,900	1,330	27*	64†	403	15	18	2,153.37	9,542.47	211
1948	—	347,230	2,671	37	54	476	12	290††	2,232.05	9,892.36	162
1949	—	310,180	2,386	28	62	953	22	14†††	2,535.19	15,892.34	154
1950	—	105,720	1,762	18	65	719	24	—	3,135.25	20,080.18	154
1951	—	123,540	2,059	14	71	654	22	—	3,344.50	24,443.64	89

1945 { *Includes 64 Maize Micro-plot Experiments.
       †Includes 53 " " "

1946 { *Includes 30 " " "
       †Includes 39 " " "

1947 { *Includes 5 " " "
       †Includes 5 " " "

1948 ††Includes 201 Sent to the I.C.T.A.

1949 †††Sent to Yale University.

14. The Sugar Agronomist resigned from his post on the 19th of February 1951 on promotion, as Cultivation Research Officer, to the Department of Agriculture, Barbados, B.W.I. The duties of the Sugar Agronomist are being carried out by the Field Manager.

15. The Conference of the British West Indies Sugar Technologists was held in British Guiana this year. The Technical and Administrative Members of the Industry in the Colony were fully represented.

16. Forty-six persons, including those connected with the Sugar Industry, visited the Station during the year. Among these were Professor C. W. Lynn, Dr. A. P. Griffith and twenty students from the Imperial College of Tropical Agriculture, Trinidad, British West Indies.

17. During the period under review close contact was maintained between the Industry and the Staff of the Sugar Station as shown by the fact that 89 visits were made to the several estates.

ACKNOWLEDGMENTS.

18. The cordial co-operation of the Staff of the Sugar Estates and of the Sugar Experiment Station is very gratefully acknowledged.

C. CAMERON,
Sugar Agronomist (Actg.)
21.8.52

"LEAF SCALD" INVESTIGATION.

BY

J. S. ROBERTSON, B.Sc., Dip. Ag. Sci., D.T.A. (I.C.T.A.)

Plant Pathologist.

A Colony-wide survey, instigated in 1951, has shown that Leaf Scald is widespread throughout the whole of the cane-growing areas. In general, the disease tends to be more prevalent on the West Coast Demerara and Berbice estates.

The most urgent problem is the replacement of susceptible varieties, namely B.34104, D.14/34, D.142/41, with canes which are resistant but have the necessary high commercial qualities.

Of the newer sugar cane varieties B.37161, B.4098, B.41227, B.4362 and D.62/43 are commercially the most promising; however, the disease has been recorded on all these varieties but they show a greater degree of resistance than those canes now in commercial cultivation. B.4098 is the most resistant but unfortunately this cane is very susceptible to the Sugar Cane Moth Borer, which appears to be on the increase, especially in the Berbice district.

Provided care is taken in preventing the spread of the disease on to these varieties they will play an important role in the maintenance of the sugar production of the Colony.

In connection with 'prevention of spread' the following control measures are being carried out by estates :

(1) Regular survey of all fields ;

(2) Regular inspection of all fields to be "drawn down" for planting material. All infected stools are rogued out. The procedure is to apply $\frac{1}{8}$th of a pint of diesel oil into the spindle and around the base of the cane, this effects complete destruction in 14-21 days (depending on age) ; by this time all phytotoxic action due to the diesel oil has disappeared from the soil.

(3) *Sterilisation of knives at planting time.* Trials are being carried out and if these are successful then attempts will be made to establish this procedure as normal estate practice. Trials carried out by Plns. Blairmont, Bath and Providence indicated that when 10% formalin was used for the sterilisation of knives there was a suppression of germination. Results from small trials carried out at the Sugar Experiment Station, using 10% formalin and 5%

crude carbolic, show that under experimental conditions there is no significant germination suppression. The results obtained by the estates may be explained by the excess handling which the procedure involves. The tops are carried to some convenient situation, prepared using sterilised knives and then transported to the field where they are to be planted.

(4) *Sterilisation of knives at harvest.* The normal practice now employed by estates is the sterilisation of the cane cutters knives before and after a field has been reaped. This controls the spread of the disease between but not within fields.

Despite the control measures which are regularly carried out on estates, outbreaks of the disease have occurred on B.41227 at Plns. Leonora and Blairmont. The nurseries from which the planting material had been obtained have been carefully inspected but no signs of the disease have been found.

These outbreaks are in all probability due to the fact that B.41227 is capable of carrying a large amount of latent infection. In these circumstances the practice has been to rogue out disease stools as they appear in the newly planted fields.

Experiments have shown that the chief modes of spread of the disease are knife infection and the planting of diseased cane setts. The natural means of spread are not known. Rats would appear to be the most likely vector, it has often been observed that fields which have a high incidence of Leaf Scald also have a high rat infestation.

Resistance Trials. The main object of the resistance trials now in progress is the testing of varieties in cultivation along with new promising varieties.

Two methods have been adopted for the inoculation of cane setts in resistance trials.

(1) *Mass Inoculation.* This method consists of completely immersing cane setts for twenty minutes in an inoculum of chopped infected leaves and stems steeped in water, just before planting.

(2) *Stab Inoculation.* Cuttings are stabbed at both ends using an inoculation cup. Two tubes each of six two-day old sub-cultures are used. The cultures used are isolates from different varieties and different districts this is to ensure that if strains of the bacterium do exist then they will, in all probability, be included. About 5cc's of liquid wilbrink medium is added to each tube about one hour before preparing the final inoculation. The cultures are mixed and the volume is made up to 700 ml. with a broth, as prepared as for the "mass inoculum."

Observations are carried out on these trials at intervals of two months and individual varieties are given percentage ratings based on external symptoms.

Ratings :—

A — Acute—complete death of all shoots.

VS — Very susceptible—heavy striping, chlorosis, stunting and death of some shoots.

S — Susceptible—striping, chlorosis and some stunting.

T — Tolerant—striping, no apparent stunting may show slight amount of chlorosis.

R — Resistant—mild symptoms, rare striping, little or no chlorosis.

Thus the following varieties may be grouped into four classes :—

Very susceptible—B.34104, B.4608, D.142/41, D.14/34.

Susceptible —Co. 419, B.41227.

Tolerant —P.O.J. 2878, Diamond 10, B.37161, B.4362, D.62/43, Co. 421.

Resistant —B.4098.

It is interesting to note that in a resistance trial all varieties do not show external symptoms at the same time. In a resistance trial at Uitvlugt Estate, where there are 157 varieties inoculated :—

3 months after planting — 18 varieties showing symptoms.

3½ „ „ „ — 25 „ „ „

5 „ „ „ — 35 „ „ „

7 „ „ „ — 41 „ „ „

At the time of cutting of the trial it was re-inoculated by artificially infected cutlasses :—

3 months after cutting. 54 varieties showing symptoms.

6 „ „ „ 79 „ „ „

There is an immediate need for the standardisation of inoculation technique for resistance trials. So far experiments in this field have not proved successful, hypodermic inoculations have been attempted but the results obtained have never shown any consistency.

The procedure that is in practice at the present time is the inclusion of standards, *i.e.* canes of known reaction, these are planted in every bed in resistance trials. In this way it is hoped to standardise results rather than individual trials.

The work which has been carried out so far, is aimed at the immediate control of the Leaf Scald outbreak, it is a short term control policy. The ultimate aim is the production of highly resistant varieties, this can only be achieved by selective breeding. Fifty-six breeding-canes have been imported from Barbados, these will be planted in a resistance trial and observations will be recorded throughout a complete cycle of cane growth ("plants," 1st, 2nd and 3rd ratoons.) From the results obtained it is hoped to select, breeding parents which have the necessary high resistance to the disease.

Losses Due to Leaf Scald.

The following experiments have been carried out to assess the losses due to leaf scald.

In both experiments fifty diseased stools were selected within a field, along with these were selected fifty apparently healthy stools from situations as near as possible to the diseased stools. Severely affected stools were deliberately avoided. Individual stools were weighed separately.

Six 25 lb. samples were selected at random from both the diseased and the healthy canes. The Brix., Pol. and Purity were determined separately on each sample.

A. *Pln. De Kinderen.* Variety B.34104 1st Ratoon. Age 12 months.

Average of 50 stools.

	Weights
Healthy	28.9 ± 1.4
Diseased	24.1 ± 1.5
Difference	4.8 ± 2.09
Calculated value of t	2.3

t at P = .05 is 2.025

Average of 6 samples.

	Brix.	Pol.	Purity.
Healthy	20.98 ± .15	79.8 ± 0.58	91.2 ± 0.12
Diseased	19.75 ± .26	71.8 ± 1.37	87.5 ± 0.71
Difference	1.23 ± .30	8.0 ± 1.49	3.7 ± 0.72
Calculated value of t	4.10	5.37	5.14

t at P = .05 is 2.45

It will be observed that the weights of healthy stools are significantly greater than weights of diseased cane. Expressed as a percentage, there is a reduction in weight of 17.2%.

A loss in yield of sugar per acre will also result, due to the reduction of Brix., Pol. and Purity. These differences are significant at the P = 0.05 level.

B. *Pln. Lusignan.* Variety D.14/34 3rd Ratoon.

(Average 50 stools)

	Weight (2 lbs).
Healthy	28.9 ± 1.0
Diseased	17.3 ± 1.0
Difference	11.6 ± 1.39
Calculated value of t	8.3

Value of t. at P = 0.01 is 2.75

(Average of 6 samples)

	Brix.	Pol.	Purity.
Healthy	22.29 ± 0.08	84.2 ± 0.54	90.0 ± 0.3
Diseased	19.96 ± 0.81	73.8 ± 1.5	89.0 ± 1.6
Difference	2.33 ± 0.35	10.4 ± 1.6	1.0 ± 0.7
Calculated value of t	6.66	6.67	1.37

Value of t at P = 0.05 is 2.45

It will be observed that the weights of healthy stools are significantly greater than the weights of diseased stools. Expressed as a percentage there is a reduction in weight of 37%.

There will also be a resultant loss in yield of sugar per acre as both the "Brix." and "Pol." of healthy canes are significantly greater than those of the diseased canes.

Chlorotic Streak

This virus disease is found throughout the cane growing lands in the colony, but the incidence is generally very low.

Under climatic conditions which prevail in the colony the disease does not appear to be of great economic significance and does not, at present, warrant the expense of control measures. If, in the future, varieties are introduced which show susceptibility to this disease, the necessary control measures will have to be carried out.

Experiment Carried out to determine the lose due to Chlorotic Streak.

Pln. Lusignan. Variety D.14/34. Cycle 3rd Ratoon. Age 12 months.

The procedure in this experiment is similar to that employed for the yield reduction trials for leaf scald.

C. *Pln. Lusignan.* Variety D.14/34 Cycle 3rd Ratoon.

(Average 30 Stools)

	Weights lbs.
Healthy	25.9 ± 0.7
Diseased	24.2 ± 0.9
Difference	1.7 ± 1.2
Calculated value of t.	1.5

Value of t at P = 0.01 is 3.65

(Average 6 samples)

	Brix.	Pol.	Purity.
Healthy	22.29 ± 0.08	84.2 ± 0.5	90.0 ± 0.3
Diseased	21.51 ± 0.21	80.0 ± 1.00	88.9 ± 0.5
Difference	0.78 ± 0.22	4.2 ± 1.51	1.1 ± 0.6
Calculated value of t.	3.55	2.78	1.82

Value of t at P = 0.05 is 2.45

As will be observed there is no significant difference between the weights of healthy as compared with diseased stools.

As the "Brix." and "Pol." of healthy canes are significantly greater than those of the diseased canes there will be some loss in yield of sugar per acre.

REPORT ON INSECT PESTS OF SUGAR CANE.

During the year under review, conditions have been most unfavourable for attacks by the Froghopper, *Aeneolamia* (Tomaspis) *flavilatera* Ur., and only on two Estates has the population of this pest warranted control measures. Where such measures have been necessary, the application of 0.65% gamma B.H.C. dust has proved a satisfactory control measure.

During the latter part of the year preparations were made to commence a Colony-wide survey during 1952 to assess the damage due to the Small Moth Borer, *Diatraea* sp., and also to ascertain whether or not the parasitism of this pest is as high as in former years.

There have also been minor attacks by other sugar cane pests, notably *Castnia licus*, the Large Moth Borer and *Sipha flava*, Forbes—the Yellow Cane Aphis,—but these attacks have been controlled by flooding in the case of the Large Moth Borer, and by predators in the case of the latter insect.

JOHN BATES,
Entomologist,

Bookers Sugar Estates, Ltd.,
28/1/52.